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THE BIENNIAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

Agricultural College of Utah

For the Years 1917-1918

Accompanied by

The Report of the President and the Secretary's Report of the Receipts and Disbursements

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THE JOURNAL
Logan, Utah

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THE BIENNIAL REPORT OF THE BOARD OF TRUSTEES

OF THE

AGRICULTURAL COLLEGE OF UTAH,

FOR THE YEARS 1917 AND 1918

To the Governor and Legislative Assembly of the State of Utah:

Ladies and Gentlemen:

I have the honor to submit, herewith, the Biennial Report of the Board of Trustees of the Agricultural College of Utah for the years 1917 and 1918.

The organization for educational purposes of the College is now as follows:

The School of Agriculture.
The School of Agricultural Engineering.
The School of Home Economics.
The School of Commerce and Business Administration.
The School of Mechanic Arts.
The School of General Science.

The Agricultural Experiment Station.
The Extension Division.
The Agricultural Engineering Experiment Station.
The Branch of the Agricultural College.

It is my pleasure to report a progress during the last two years which is unprecedented in the history of the institution. The response of the College to the demand of the nation for scientists, mechanics, technicians, and army officers constitutes a chapter in the history of education in Utah which is very creditable. Some thirteen hundred men trained at the College have been able to serve the country largely in the capacities mentioned.

The demobilization of the Students' Army Training Corps which is taking place this month (December) concludes this particular service to the nation which is so gratifying to the Trustees and to all our citizens. As the boys leave for their homes it is most gratifying to report to the Governor and Legislature a total absence of all infectious disease, a condition which I doubt can be duplicated by any simliar body in the nation.

The devotion and loyalty of the faculty and students to the highest interests of the State continues to be one of the distinguishing marks of the College. Great enthusiasm has characterized the entire work of the Institution during the past two years and the Board unites with faculty and students in the keenest anticipation of the service which the College will be able to render during the days of education and industrial reconstruction which are ahead.

The establishment of the Agricultural Engineering Experiment Station (on December 2, 1918) marks another event of considerable importance in the development of the work of the College. It is confidently expected that this Station will be a worthy addition to the instrumentalities of the Institution in the work of developing rural life to the highest point of efficiency.

The College appreciates the loyal support of the people of the State which largely comes because the Institution strives to be useful in every phase of its activity. It is proud to be known as the Farmers' College and proposes, carefully and within the resources at its command, to magnify its great mission to the utmost. The estimates of proposed expenditures for the coming biennium have received the careful attention of the Board and are presented for approval in their entirety. Many things badly needed have been eliminated by the President of the College because of our desire to operate at the lowest possible expense consistent with good service.

College Proper:

Emergency and War Appropriations Authorized—

New Roof to Mechanic Arts Building	$ 1,060.39
Dairy and Live Stock Building Excess	27,325.99
Barracks and Mess Hall No. 1	40,000.00
Barracks No. 2	40,000.00
	$108,386.38

Improvements and Additions—

Horse Barn and Farm Machinery Building	5,000.00
Addition to Heating Plant	25,000.00
New Heating Tunnels	5,000.00
New Pressure Connection with City Reservoir	10,000.00
Redistributing System Water Supply	3,000.00
Rewiring and new Lighting	5,000.00
Practice House in Home Economics	10,000.00
Vegetation Houses	2,000.00
Seed House	2,500.00
Farm Land for Instruction and Experiment	25,000.00
Gymnasium Improvements	3,500.00
	$96,000.00

Experiment Station:

Experiment Station total	80,600.00

Extension Division:

Extension Division total	100,524.00

Herewith also are mentioned the biennial needs of the Branch of the Agricultural College:

Repair and Improvement of Old Buildings	$ 5,700.00
Campus Improvement	2,000.00
Equipment	16,325.00
New Buildings	8,750.00
Grand total	$32,775.00

The State Power Plant will need the following allowances for maintenance during the next two years:

Total salaries of all employees for twenty-four months at $350.00	$ 8,400.00
Extra help	400.00
Traveling expenses	250.00
Maintenance	1,000.00
Unforseen (accidents to machinery and high water damage)	2,000.00
Transmission charges to Utah Power and Light Company, 24 months at average of $600 per month	14,400.00
Total	$26,450.00

The following pages contain in detail reports and plans of the College in all its departments. The Board of Trustees respectfully urges that the budget in its entirety be approved by the Governor and Legislature. We feel that the Agricultural College of Utah constitutes the greatest single educational agency which the people of our beloved State possess. We are very proud of its achievements and are equally confident that the people appreciate its great work in the interest of the farmers, the housewives, and the industrial workers. It is in very deed the College of the common people.

Respectfully submitted,
LORENZO N. STOHL,
President Board of Trustees,
Agricultural College of Utah.

Biennial Report of the President

1917, 1918

To the Board of Trustees of the Agricultural College:

I have the honor to submit the following report of the Agricultural College of Utah for the last biennium and including plans and financial estimates for the work of the ensuing two years. You will note in the following pages the separate reports of the various administrative and instructional divisions and departments of the College as follows:

The Instructional Divisions or Schools.
The Agricultural Experiment Station.
The Extension Division.
The Branch of the Agricultural College.
The Students' Army Training Corps.
The Committee on Food Supply and Conservation.
The Departments of Instruction.
The State Power Plant.
The Registrar's Office.
The Library.
The Departments of Grounds, Buildings and Water, Heat, Light and Sewerage.
The Office of the Financial Secretary.

THE COLLEGE AND THE WORLD WAR

It is a special source of pride to report the activities and accomplishments of the College in the World War which came to a close with the signing of the armistice, effective November 11, 1918. No chapter in the history of the Institution is more worthy than that which records its response to the call of the nation for military and scientific leadership. I call with particular pride your attention to the detail of the report of the Students' Army Training Corps of the College and the report of the Executive Secretary of the Food Production and Conservation Committee of the State Council of Defence, of which Committee I have the honor to be Chairman. In recording this national service which the College has rendered, which service with the coming of peace now shifts from the directly military to an equally important service related to national reconstruction, I wish to express the satisfaction and appreciation of the College because of the liberal support which has characterized not only the general citizenship of the State but also the State administration, particularly His Excellency, Governor Bamberger, the State Council of Defence, through the Honorable L. H. Farnsworth, its chairman, the State Food Administration through the Honorable W. W. Armstrong, the Relief Society of the Church of Jesus Christ of Latter-day Saints and the various ward and stake organizations of the Church, and the State Farm Bureaus. Very gratifying likewise to all friends of the College has been the constantly helpful and cooperative spirit which has characterized the municipal administration of Logan City through Mayor Roy Bullen and the Logan City Council of Defence through Chairman Mariner Eccles.

The College, during the war, has been enabled to contribute thirteen hundred seventy-five trained men, largely as leaders to the armed forces of the nation and in addition has been able to lead the food production and conservation activity of the State. In food production and in conservation, it is doubtful if the record of the State of Utah is equalled by any state in the Union. Such results are only an expression of the particular genius of the State which is essentially creative and very highly and intelligently social. The State's whole war record and especially its production and conservation record is worthy of the Pioneers who laid the foundation of Utah deeply in those fundamental attributes which mean so much when a nation or a state is facing hardship and sacrifice.

THE FOUR QUARTER SYSTEM

The Agricultural College of Utah was the first institution of its kind in America to adopt the four quarter system of instruction, whereby the College is in practically continuous session throughout the year. This action was approved by the Board of Trustees just prior to the entrance of the United States into the World War. Since that time, and largely as a result of war measures, practically all the colleges of America have adopted the four quarter plan. The plan meets admirably the industrial and educational conditions in Utah and is undoubtedly a permanent arrangement in our schools. It has made necessary, as approved by the Board, certain extra remuneration to teachers which, however, is small compared to the service rendered.

ENGINEERING EXPERIMENT STATION

For many years as the industry of the State has grown, with a corresponding development of the work of the College, it has been apparent that the College should devote more attention to the higher branches of engineering as these affect the farm and the farm home. In 1911, President Widtsoe, recognizing this fact, secured the establishment of the School of Agricultural Engineering at the College which has been successfully organized and is successfully meeting the many demands for advanced training in the various branches of irrigation and drainage, farm mechanics, road building, rural architecture, rural sanitation and public health, the manufactuing of agricultural products, and related work. The necessity for a separate experimental division now to devote itself to the solving of the problems of the farm as these relate to agricultural engineering is apparent. In this connection, it is interesting to record that the College is one of the first institutions of learning to recognize the necessity of experimentation in agricultural engineering. President Sanborn, the first executive of the College, began this work over a quarter of a century ago. Such activity has been continued until the present. By careful use of existing funds, and by wise redistribution of funds in certain cases, the necessary expenses of the Agricultural Engineering Experiment Station can be borne without appreciable additional cost. The South Barracks, the construction of which was made necessary to supply sleeping accommodations for the soldiers, has been planned to accommodate the necessary instruction in agricultural engineering and likewise affords facilities for experimentation which the institution has so long needed. Upon approval by the Board this building will be designated as the home of the Agricultural Engineering Experiment Station.

AGRICULTURE

The College, for administrative reasons, is divided into divisions or schools. The school first in importance relates to the work of agricultural instruction. Here, the agriculturists and husbandmen of the State are taught and the great agricultural issues of the State are dealt with in detail. The aim of the School of Agriculture, as indeed of the whole College, is not primarily academic. Its first purpose is to develop the industry and the art of agriculture. It concerns itself with academic methods only as they may be important in the industry. No fact is given consideration unless it is a fact which can be put to work. The distinction between pure and applied science is not well made. Science is science and often the "purest" may become the most strongly applied. But the problems of agriculture which concern this College are those of a direct and immediately practical nature. The College aims first to be an institution of higher usefulness; it is also an institution of higher learning.

THE ANIMAL INDUSTRY

First among the agricultural concerns of the State are those which relate to the development of a system of farming which includes animal husbandry. The State's agricultural wealth is largely live stock. To insure proper live stock management presumes an exhaustive knowledge of the principles of breeding, forage production, range management, feeding, as well as training in the detail of dairy farming and dairy manufacturing. The proper caring for the immense crop of wool and the introduction of a larger measure of sheep husbandry into our general farming likewise is an educational concern of great importance. The value, apparently permanent, which has come to all live stock and live stock products makes extremely unwise the trusting of the handling of these to inexpert hands. Our husbandmen must be trained definitely for their tasks. It is our privilege to furnish this training. The State has endowed us with a magnificent building which becomes the educational home of the live stock men and the dairymen of the State. The instruction given in the new building will return to the State a hundred fold its investment, can we but secure a moderate response in improved management of our flocks and herds.

IRRIGATION AND DRY-FARMING

Utah, the home of irrigation practice in modern America, is becoming likewise the advanced exponent of irrigation science. The work of Widtsoe, Fortier, Merrill and others among the older workers and the work of the present experimental and instructional staff is having a marked effect in standardizing this practice which means so much in the development of western civilization. Dry-farming is spreading throughout areas once thought unreclaimable. Investigation and teaching must extend over long periods and be unremitting in order to people the vast western spaces with successful farmers and prevent unwise, malicious or thoughtless placing of people on undesirable land. In a very exact sense, our future development in irrigation and dry-farming is bound up with our research and our education. Insistent work must likewise be done in order to accomplish the drainage of the surprisingly large acreage of water-logged and alkaline land in the State. It is hoped that the College may be an instrument in the hands of the State and federal government in instructing the thousands of returning soldiers who will long for the freedom and independence of farm life. Utah will be able to furnish land, capable of reclamation under government auspices, for a large number of new citizens. The supplying of education for these new farmers is as important as the supplying of land and water because irrigation farming presumes more training and higher intelligence than farming under humid conditions.

SUGAR BEETS AND CANNING CROPS

Under the altered conditions produced by the war, an additional emphasis has been given to sugar beet raising and the culture of such crops as admit of canning. In this manner we can make good use of much of our choicest land. Such intensive farming as these crops make necessary likewise raises greatly the standard of practice and adds permanency to our system of farming. We must develop further our industries in these directions looking to the preparation by various manufacturing processes of the raw products, which processes our distance from markets makes it necessary for us to depend upon.

HOME ECONOMICS

Equally as important as agriculture itself is the development of home life in the State. The earnings of the farm, if our civilization is to be permanent, must support a home strongly endowed with those qualities of intelligence and culture which alone insure permanency. Utah's history, until comparatively recently, is largely one of privation and sacrifice. We cannot too highly honor what has been done for us by those who transformed the State from a desert. We have lately come into comparative wealth; our mines have developed into treasure beds and our farming has become exceedingly profitable. With the wealth must come great educational opportunity. The destructive materialism which follows mere accumulation fortunately is absent from the State. The people love education, they love learning, but they insist that it shall not be the harsh and spirit killing creed which has too largely dominated the schools in the past.

It must be surrounded by the proper quality of sentiment without sacrificing any of its intellectual strength. Especially important is this point of view when we are given the responsibility by the State and nation to supply higher education and vocational guidance to the housewives of our commonwealth. The training of women for the duties of parenthood and for mastery of the difficult and delicate tasks which surround home making is the most sacred obligation of this College to the State.

It is a pleasure to record the great contribution, to the State, of Professor Alice Ravenhill, an eminent scholar whose term of service at the College ends this year. The influence of Professor Ravenhill will have resulted in a great standardizing of our Home Economics instruction, bringing as she does to the College a valuable scholarship and an experience which is world wide.

AGRICULTURAL ENGINEERING

Without question we have reached the stage in the development of our agriculture where engineering is to play a very important part. Already our production is dependent, in large measure, upon the operation of the tractor and the proper manipulation of an increasingly complex machinery related to cultivation and harvesting. Pumps are replacing in a great many areas the gravity systems in irrigation. Road building, by means of which crops can be economically brought to market, is recognized as second only to production. Farm buildings of modern and efficient design are replacing the sheds and other hurried construction of earlier days; rural architecture is soon to be a profession itself. Rural life is being held back very greatly because of our inadequate incorporation of a proper system of water supply and garbage and sewage disposal in the home. Present prices for farm products mean that Utah farmers can have, if we can but bring the facts to them, all the necessary conveniences of modern life. The agricultural engineer must be trained in surveying, hydraulics and the other necessary detail which will enable him to master the engineering of rural life. He must know building materials and their values. Equally important is the development of agricultural manufacturing whereby the products of the farm as stated previously in this report may be put in that condensed form which our distance from market makes necessary. All these and related problems are the province of the School of Agricultural Engineering. It has a great, immediate opportunity.

COMMERCE AND BUSINESS ADMINISTRATION

The Agricultural College of Utah was the first collegiate institution in America to offer a degree in commerce. It has, during the last quarter of a century, developed this training to the point where it is meeting most effectively the needs of the State, both in the training in a comprehensive way of the young men and women of the State in the broad principles of business science and administration, and also in the very popular field of business practice. During the war, especially, our capacity has been taxed to the limit to produce skilled office workers to meet the demand of the federal government. The School of Commerce is very effectively organized and is doing its work well. The plans for the future are considered in detail in the report of the Director of the School which appears later in this report.

The following authoritative statement from Babson's weekly advice to business clients, date of November 26, 1918, states very strongly the particular opportunity which confronts our School of Commerce and Business Administration:

"Emergency Calls for College Training

"College clients should make their plans to get back on a peace basis at the earliest possible moment. The period of keen competition, both in domestic and foreign trade, that will surely follow the conclusion of peace, will put a premium on men thoroughly trained in the problems of business administration. Morerover, with so many chaotic theories of new social orders abroad, it is important that effort shall be made to clarify the issues in the minds of our younger men. Particular attention should be paid to the schools of commerce or business administration. . . . The colleges must undertake the task of equipping leaders of American business for the service of peace with the same promptness and thoroughness that has been shown by our colleges in undertaking the training of war. They should aim to build up a high-grade college of business administration where the degree will be just as desirable to the man who aspires to a position of responsibility in the conduct of a business enterprise as the degree of A. M. and Ph. D. are to the teacher, M. D. to the physician, of LL. B. to the aspiring lawyer."

GENERAL SCIENCE

From the first the College has been fortunate in having strong departments in the sciences which underlie agriculture, home economics, and the industries. Chemistry, physics, bacteriology, and zoology undoubtedly play the largest part in the development of our industries. In addition, the College has always maintained instruction in those other branches of knowledge which are necessary in the broad and liberal training of our farmers, housekeepers, teachers, business men and other industrial leaders.

THE AGRICULTURAL EXPERIMENT STATION

The Agricultural Experiment Station has continued during the biennium just closing its valuable investigations in the interest of Utah farmers. Many problems peculiar to this region have been attacked with gratifying success. These relate, as you will note in the report of the Director, particularly to the use of irrigation waters at varying seasons and in varying quantities, the development of the sugar beet seed industry and the breeding of sugar beets, the determining of the precise action of mineral salts, unfortunately so abundant in certain soils, the feeding of live stock with the aim in view of developing from our native forage and grains a greater industry in conditioning our sheep and cattle for market, poultry management, soil problems, insect pests which thrive more destructively as our agriculture expands and intensifies, animal diseases, underground water exploration, and the many other items of an advanced agriculture, the mastery of which even in part is returning to the State and nation many fold the investment involved.

THE EXTENSION DIVISION

The campus of the College is the whole State. Quickly under war pressure and largely at federal and county expense, the Extension Division of the College enlarged its agencies until it now reaches, in an organized, definite, and permanent way, the entire State. County agents, home demonstrators, specialists and junior vocational workers under enlightened federal aid carry the message of scientific agriculture and home making throughout Utah. The response of the farmers and housekeepers has been gratifying. Farm bureaus, wisely and carefully administered by local leaders, have sprung up everywhere, preventing thereby the radical and, in some sections, extremely intemperate and even disloyal organization of farmers into destructive combinations which injure agriculture fully as much as they injure the agencies which they attack. Thankfully, this spirit of loose and reckless attack is absent in Utah. The farmers wisely and conservatively are organized to develop their industry to the point of highest efficiency, without malice. The farmers and housekeepers have supported the agents and specialists in a way which establishes beyond question the permanency of the Extension Division system of education in agriculture and home economics. A number of instances are of record where the population of whole counties has united to prevent the resignation, for military reasons or otherwise, of agents who have shown by their sympathy and hard work how valuable they are to the agriculturists. It is conservative to say that the Extension Division is peacefully and quietly revolutionizing the agriculture of the State by bringing the individual farmers to a measure of efficiency unthought of a few years ago.

THE BRANCH COLLEGE AT CEDAR CITY

The Branch of the Agricultural College at Cedar City continues to grow vigorously with the development of the southern part of the State. Conservative requests for maintenance and expansion of this commendable institution are included later in this report. It goes without saying that so creative a force as the Cedar City institution represents is greatly appreciated by the people of southern Utah.

RECONSTRUCTION

The victorious conclusion of the war brings to education in America new burdens and new opportunities. The public now knows as it never knew before that learning and civilization must go together. If the winning of the war was made possible only through our equal or superior mastery of science so the victories of peace will come to those peoples who are most adequately trained to meet the conditions which a forward moving civilization imposes. We are already in a scientific and technical age. The College is fashioned by federal and state law to meet the issues. We should anticipate an enlarged patronage by the people who, under more advantageous circumstances materially than ever before and with minds and hearts stimulated by the spectacle of the last four years, will turn to those institutions in increasing measure where not only the spiritual and moral ideals of the race are guarded sacredly but where, as with our own College, the common necessary labor of life is ennobled and where the sciences and the arts of man, built with painful slowness by all peoples over all history, are brought to the tasks of daily life.

THE MISSION OF THE COLLEGE

"Labor is Life." These are the words on the seal of the Agricultural College of Utah, which tell more distinctly than long documents what the College is for and how it does its work. "Labor is Life" is not a sounding phrase, merely. It is a working rule. It means what it says. It is a rule which puts overalls on the men students and kitchen aprons on the women students. It is a robust philosophy which honors men and women who work with their hands as well as with their minds.

The College is a sound embodiment and interpretation of Americanism, because Americanism means equality of opportunity, means recognition of those who deserve by their work: it means honor to those who produce and deserving lack of honor to those who only consume. It deals with the foundational productive things of life, the farm, the home, the business office, and the shop. It produces the tireless scholar-servant, the expert, the skilled farmer, the clear and clean visioned housewife, the office worker and business administrator, the agricultural engineer, and the teacher. It is democracy worked out in education. It calls to its halls not only those leaders who have passed successfully through the discipline of high school, but also those whose lives are so ordered that they cannot go through the regular processes of high school and college but must acquaint themselves quickly with those vocational principles and practices which will make them masters of their trade or profession whether that be farming, stock raising, mechanical work, business office detail, or the processes of home life, including nursing, cooking, sewing, and care of children. So there are no educational, as there are no social, class distinctions at the College. Workman and scientist toil side by side because each seeks to master in part the knowing and the doing of useful things, which is the science and the art of life.

Under our state and national scheme of education, to other institutions is given the great privilege of developing the professions of law, medicine, and technical engineering, other than agricultural engineering, and of developing education in liberal arts and normal work. The College deals with the important "professions" of farming, home making, business and commercial management, agricultural engineering, and with the training of teachers of agriculture, home economics, and the trades in secondary schools, and of technologists in the sciences including chemistry, physics, bacteriology, the various special branches of agricultural science, rural sanitation and public health, dietetics, and institutional management. It is a source of satisfaction to know that the College is reciprocating the very cordial coöperation of all educational agencies looking toward the greatest possible service to all the people, at the same time developing to the utmost, within our resources, the great fields of education and service which are given to us. We are not seeking institutional advantage; the State of Utah is greater than any institution. The people of the State demand that common sense prevail in the management of all their affairs. They desire that we serve the State. Their ideals and ambitions are our guide. We do not presume to impose either an artificial development beyond their wishes or a spirit of education foreign to their ideas. It is a firm conviction at the Agricultural College that the citizens of Utah represent as advanced and enlightened a regard for real culture as exists in even the most advanced centers of learning of the nation. Furthermore, the Pioneers and those who came after them in Utah, in the heroic record of a little more than a half century, have shown a love for learning and an adherence to the solid and substantial things which are not surpassed in the world.

FACULTY

The faculty of the College represent a loyalty and devotion to the ideals of our State and the nation which makes participation with them in the common work of the day constantly a source of satisfaction. In the daily tasks which make up the year and especially in the emergencies which the war and the prevalent epidemic have produced, members of the faculty and employees of the institution have in a most self-sacrificing way responded to every demand. It is no injustice to others to mention specially the work of Professor Ray B. West and the faculty in Agricultural Engineering and Mechanic Arts, who, during the past six months, have established a most enviable reputation for the College in the training of soldiers as mechanics and technicians. Professor West and Captain Henry D. Moyle, Acting Commanding Officer in the trying days when the Influenza epidemic was threatening the success of our work, did much to control the situation which has so disorganized the activity of many institutions in the country. I must likewise make record of the loyal service of the faculty in Home Economics in supplying an invalid diet for those in the hospital during the prevalence of the disease. The low mortality at the College was due in good part to the intelligent service of those mentioned, together with the prompt and efficient organization by Dr. D. C. Budge and associates of the College hospital which soon established effective control over the malady. We are now free from the disease permanently, it is hoped.

BIENNIAL NEEDS

A statement of the estimated expenditures of the College for the coming biennium, together with separate statements of the needs of the Branch of the Agricultural College and of the State Power Plant, as required by the next Legislature, at the request of the Governor, is now in his hands, having been approved by the Board.

In the way of enlargement of the plant and suggested improvements, the budget represents a large decrease over the requests of 1916. I most earnestly hope that, in view of the elimination of all items except those of immediate usefulness, the entire budget may be approved by the Governor and Legislature. The budget was prepared in the face of an enrollment on October 9, 1918, approximately double that of any preceding year on a corresponding date, yet the request for improvements and additions to our equipment are very much reduced.

The summary of these needs is as follows:

INTERIOR INSTRUCTION (College Proper)

Emergency and War Appropriations Authorized—	
New Roof to Mechanic Arts Building	$ 1,060.39
Dairy and Live Stock Building Excess	27,325.99
Barracks and Mess Hall No. 1	40,000.00
Barracks No. 2	40,000.00
	$108,386.38
Improvements and Additions—	
Horse Barn and Farm Machinery Building	$ 5,000.00
Addition to Heating Plant	25,000.00
New Heating Tunnels	5,000.00
New Pressure Connection with City Reservoir	10,000.00
Redistributing System Water Supply	3,000.00
Rewiring and new Lighting	5,000.00
Practice House in Home Economics	10,000.00
Vegetation Houses	2,000.00
Seed House	2,500.00
Farm Land for Instruction and Experiment	25,000.00
Gymnasium repairs	3,500.00
	$ 96,000.00

EXPERIMENT STATION:

Experiment Station total	$ 80,600.00

EXTENSION DIVISION:

Extension Division total	$100,524.00

In addition to the above which the Board of Trustees has presented to the Governor and Legislature as the minimum requirements of the College, the need is strongly felt of additional facilities in order to enable the College to carry the responsibilities laid upon it by the State and the Nation. These requirements include: A residence hall for girls which has long been needed by the Institution; a satisfactory armory and drill hall to accommodate the Reserve Officers' Training Corps maintained at the College at federal expense; and a separate library building to house the very valuable collection of books and documents now imperfectly housed in the main building.

It is not thought advisable, however, to present these to the Legislature at this time, realizing the necessity of being extremely careful in regard to extra expenditures in view of the many reconstruction necessities of the State. It cannot be too strongly emphasized that the College has cut its requests to the limit and has included no items with the expectation that they would be disallowed.

In conclusion, permit me, as the executive of the College appointed by you to carry out your policies, to express my appreciation of the unity of purpose and devotion of the Board to the higher interests of the State. May nothing disturb the present fortunate system of educational organization whereby Utah avoids the danger of lodging in the hands of professional boards the great interests of popular education which should be kept under the control of men and women truly representative of, and immediately responsive to, the citizenship of the State and whose services are not purchasable in terms of salary but who gladly give without pecuniary return their time to the State. The State, I am sure, greatly appreciates the wise and constant service of so many of its tried and honored citizens.

Respectfully submitted,

ELMER GEORGE PETERSON,
President.

Directors of Schools and Divisions

THE SCHOOL OF AGRICULTURE

To the President of the College:

Sir: I have the honor to report herewith the probable needs of the School of Agriculture in the immediate future:

The School of Agriculture is attempting to meet the needs of the State and of the nation· We have but to look at Agricultural College men in various prominent positions throughout the western states and in the government service to see how well this is being done. The School of Agriculture is training men to take responsible professional positions and to take up farming. It has succeeded beautifully in the first. Is has succeeded well in the second, but can be made to succeed far better. Three classes of students come to us for agriculture for either the regular college course or the short, practical course:

1. The boy who has been raised on a well managed and well organized farm and who knows farm life from an ideal point of view.
2. The boy who comes from a poorly organized, mismanaged farm and to whom farm life means drudgery.
3. The boy who has not been raised on a farm and who has had little or no farm experience·

The majority of the boys who come for agriculture belong to the last two classes. Now that the war is over we shall have a much greater percentage of the last two classes and men who expect to manage farms when they get through. They ought, therefore, to be given increased opportunities to get the practical experience of doing and of over seeing the various kinds of farming to supplement the theoretical classroom study. What would the average agricultural graduate know about the management of a poultry farm? There ought to be a dairy farm, a live stock farm, a range, a general irrigated farm, a fruit farm, a vegetable farm, a dry farm, and an apiary. These should probably be combined under one management, but they should afford opportunity for a man to get any combination of experience he might wish. That should be supplemented by a greater attention to laboratory work. It is "contact" that men want.

In the future, men are coming for practical course work in far greater numbers. There is opportunity for the College, in my opinion, to pay much more emphasis to this phase of work.

Respectfully submitted,
GEORGE R. HILL,
Director, School of Agriculture.

SCHOOL OF AGRICULTURAL ENGINEERING AND MECHANIC ARTS

To the President of the College:

Sir: I have the honor to report herewith the School of Agricultural Engineering and Mechanic Arts for the past biennium:

I am pleased to report that the School of Agricultural Engineering and Mechanic Arts, at the present time is in the very best of condition. Due to the war, and the demands of the War Department for certain kinds of work along the lines of engineering and mechanic arts, we have the largest school that we have ever had. Last winter before the Soldier Training work began, there was such a demand for work in all of the mechanical lines, that the classes in the shops were full to overflowing. The rapid development in the automobile and tractor work and the allied departments of Forging and Machine work, have taxed these departments to their capacity.

In June of this year, at the request of the War Department, we assumed the responsibility of training U. S. Soldiers as mechanics and technicians. Our first contingent was 288 men, our second contingent was increased to 432 men, and beginning November 15 the vocational division was increased to 700 men. As head of the Vocational division, I feel that our work has been very creditably done, and that in the short space of two months, we have turned out men that will be a credit to the Institution, and a very great help to the nation.

In order to provide housing facilities for the soldiers it was necessary to build a barracks building, which was constructed with the aim that when it was no longer needed for housing soldiers we could make it into a building for classroom purposes. It is hoped that the Legislature will see fit to complete this building for work next fall, as it was planned as a building for the School of Agricultural Engineering. This building will house the departments of Irrigation and Drainage, Farm Mechanics, Mechanical Drawing, Surveying, Rural Architecture, and Roads, and the basement will contain an up-to-date irrigation laboratory where water measurement demonstrations will be conducted.

As regards equipment for the coming biennium, we need for the Automobile department a cylinder boring machine, which would cost about eight hundred dollars; a tennoning machine for the Woodwork department, $500.00; and some small tools, amounting to about five hundred dollars for the Machine shop. In general our departments are very well equipped to do the work we are attempting to do.

The future of the work looks very bright. With correlation of the various departments the work is bound to grow.

While the fields embraced by the different departments are yet quite new and unexplored we are gradually systematizing and standardiizing the work so that each year sees a greater appreciation for it.

Respectfully submitted,
RAY B. WEST,
Director, School of Agr. Eng. and Mechanic Arts.

SCHOOL OF COMMERCE AND BUSINESS ADMINISTRATION

To the President of the College:

Sir: The following is a brief statement of the condition of the School of Commerce and Business Administration for the biennium just closed and a forecast as to what the needs of the next biennium are likely to be.

Attendance.—The registration in the school has been surprisingly large when we take into account the many circumstances of the last two years which affected the work of this school. The last biennium has seen a 50 per cent increase of attendance over the previous one. Last year the registration surpassed that of the school of Agriculture, and if we are to count the correspondence students and courses, it surpassed that of any other school in the institution. The fact is not mentioned boastingly, but to show that the School of Commerce is an intrinsic part of the College and ranks among its major divisions.

Equipment.—The erection of the three new buildings on the Campus will release for our use enough space in the main building to take care of the growth without any abnormal expenditure. The building is admirably adapted to the class room and laboratory needs of the work in commerce· Thanks to your generous support, Mr. President, and the liberality of the Board of Trustees, the Department of Accounting and Business Practice has during the last few months been equipped with the most upto-date labor saving devices that could be obtained. That department is now as well equipped to do the work which will be required of it for the next few years as any department in the Rocky Mountain States. A fund of a very few hundred dollars for the next two years would take care adequately of our needs so far as equipment is concerned.

Course of Study.—For a number of adequate and legitimate reasons, the division of the various departments of the school has not been as clear cut and well defined as it ought to be. This defect will be remedied very easily when business education becomes more stable and the purposes of the School of Commerce become more clearly defined in the minds of the people of the State.

The last year has seen a tremendous increase in the demand for the more immediately practical courses such as typewriting, stenography, and elementary accounting. The lessons the War has taught and the enormous demands of reconstruction are going to throw into prominence still other phases of the work of commerce. The need for the expansion of markets that America might maintain her normal rate of growth necessitates the development of courses in markets, foreign trade, diplomacy, consular service languages.

A course was outlined by a special Government Committee on Commercial Education last summer as an ideal course of study for the training of men to take an active part in the development of trade and commerce· It was recommended that all colleges through the country adopt this program. The Agricultural College needed to add but one course in American Diplomacy to its present course of study in order to conform absolutely to the ideal outline. The prominence that the War has given to agriculture and farm life, is going to merge the interests of the School of Commerce with those of the School of Agriculture, Home Economics, and Agricultural Engineering as they have never been before. New significance will undoubtedly be given to rural credits and kindred subjects. My recommendation is that more attention be given these subjects by the Board of Trustees in the interest of the agriculture and home life of the State. Utah has perhaps the best organized rural population in existence.. It would be a shame if we need not plan to make that organization serve our ends in the best possible way. An organized effort has been and is being made to get a great deal of rural survey work done in the State; the director of the Experiment Station has already proferred to divert funds in this direction for experimental purposes. I believe the College could render some very valuable servic to the agricultural interests of the State by doing some genuinenl scientific work in this line. I recommend, Mr. President, that as soon as feasible, funds be diverted for investigation work of this character.

The advantages that accrue everywhere to business men who know their business is a force, I firmly believe, which will continue to keep the work in accounting, auditing, and business management in demand. The demands will be made as rapidly as we are prepared to meet them. When the war is over and business again becomes normal and labor more plentiful, business men and employers generally are not going to tolerate for long inefficiency and mediocrity in their employees. They are justified in insisting that the State train broadly the young men and women who are to apply to them for employment.

Faculty.—The School of Commerce suffered a distinct loss in the death of Professor W. E. Brooke. He was a thoroughly trained young man, with enthusiasm for the Agricultural College and all her various interests. His contributions to the welfare of the School will be missed in many ways. On account of the war, we have also lost the services of Mr. Langton Barber, Mr. W. E. Thain, and Mr. Leon Hardy, which very materially reduces our teaching strength.

Unquestionably, Mr. President, the most important element in the building up of a department in a college is the kind of men who are to do the teaching. I most emphatically at this time, recommend that you arrange to employ at least two additional faculty members in the School of Commerce. The best trained men that the funds of the College can employ are the kind we need and ought to have. If you must economize in the use of our appropriation let it be in our equipment and not in our teaching force. We need carefully selected men—men who fit into the conditions in the State of Utah and who have an interest in her institutions. They should be adequately paid so that their entire time could be devoted to the interest of the College. I recommend also that arrangements be made at once so that as soon as practicable members of the present teaching staff can get away and continue their studies further in order that the standard of teaching in all departments of the school will be raised.

Respectfully submitted,
GEORGE B. HENDRICKS,
Director, School of Commerce and Business Administration.

SCHOOL OF GENERAL SCIENCE

To the President of the College:

Sir: The science and art departments of the Institution compose the School of General Science. The cultural phase of the education of all the other students is provided by this School as well as the science work which is at the foundation of all of the technical work of the institution.

The best professional schools of the country require the entering student to have a bachelor degree. Students, therefore, who come from rural communities and who expect to practice their professions such as medicine, dentistry, or law in these communities, can, and do, take their collegiate work in the Agricultural College registering in the School of General Science.

The registration the last two years was a little smaller than usual, naturally, because the war took so many of the boys into the army. The laboratories are well equipped, the faculty is strong and the work well done. The war having closed, we will experience a substantial growth next year, rendering even better service to the State.

Respectfully submitted,
FRANK L. WEST,
Director, School of General Science.

THE SCHOOL OF HOME ECONOMICS

To the President of the College:

Sir: Various changes have taken place in the School of Home Economics during the past two years, and are still active, all of them designed to increase the efficiency and the expansion of the work carried on for the benefit of the women of this State. Thus—while it is desired to raise the standards of study and practice among the college students— equal care has been and will be given to such enlargement of the scope of the School's activities as will enable those who can only attend the vocational courses for a few months to derive from them the fullest possible stimulus and practical benefit. Seeing, then, that this may be justly described as a transition period, the actual number of registrations must not be taken as a sole evidence of the worth of the work carried on in the School, though these may be considered satisfactory in view of the abnormal conditions associated with the War. The total registrations in the various departments of the School during 1917-18 amounted to 907 distributed as follows: Fine and Aplied Arts—200. Domestic Arts—202. Foods and Dietetics—153. House Construction and Sanitation—352. As each of these Departments renders its own seperate report, it is unnecessary to include here further details; though it is in order to point out the unsatisfactory possibility for students, under the free elective system which now obtains in the College, to satisfy all group requirements as graduates in Home Economics, and yet to be entirely untrained, as the case may be, either in Food and Dietetics, or in Textiles and Clothing, or in Household Administration. So long as Art and Music are accepted as "Minor" subjects for graduation, a proportion of students continue to graduate with training in one only of the group of three subjects, which together constitue Home Economics—an anomaly which calls for immediate correction.

Particulars of the staff required during the next biennium and of the appropriations necessary to meet the needs in each of these Departments have been already submitted; but, while dealing with the School as a whole, I desire to point out the convenience and advantage which would result if an annual appropriation of say $300.00 could be made directly to the School of Home Economics, to cover cost of stationery, postage, office supplies, freight charges and small general expense, which are not directly referable to either Department, but are incurred for the benefit and needs of the School as a whole; a whole time stenographer is also very essential to the School, as her services would be divided between general work for the whole school and special work for each of the Departments.

Attention may here be drawn to the fact that the title of Department of Domestic Art is now superseded by that of Textiles and Clothing, in order to describe more accurately the subject matter of the studies pursued in that department. At the same time this change of title enlarges the viewpoint of the students, for, besides covering the same field of work as hitherto, they are now enabled, should they so desire, to study the commercial as well as the domestic aspects of the care, manufacture, purchase or sale of textile goods and clothing, and thus to fit themselves for the charge of institutions of all kinds or for positions open to trained women in department stores and other business conserns.

The comprehensive term of Household Administration has similarly superseded the more restricted title of House Construction and Sanitation, because of the growing conviction that increased stress must be laid in all Schools of Home Economics upon the fundamental reason for their very existence, namely: the right care and conduct of human life in the home, the direct opportunity for the study of which is afforded in this department, in which each course is concerned with one or more phases of the home care of human life. Close coordination is, however, established with the more detailed study of the varied aspects of this care carried on in the Departments of Foods and Dietetics and Textiles and Clothing; or in the Departments, for instance, of Art, Bacteriology, Chemistry, Physiology, Business Practice and Sociology, in order that balance of parts and a true perspective may be maintained. The ready response from these Departments to requests for closer cooperation with the School of Home Economics in the subject matter of the courses fundamentally associated with the special work carried on in its various classes is warmly appreciated, and will unquestionably add to the efficient work of the students.

The valuable course in Mothercraft organized in 1916 was followed by 150 students in 1917-18. It is to be hoped that a similar registration may be made this year, when the course appears under the title of, "The Care of Infants and Children." This change is dictated to emphasize the fact that such training must include much more than manual dexterity, or "craftsmanship"; for it is concerned with the spiritual, intellectual and physical development of human beings. Both parents, not mothers only, are responsible for the nature inherited by each infant, and the right rearing of children calls for the cooperation of the father with the mother. The course is advisedly placed in the Senior year, for it connects at so many points with all the studies pursued in this and the other departments of the School.

It is to be hoped that suitable and very carefully safeguarded provision for the actual practical care of healthy children of various ages may soon be associated with the most important development in the School of Home Economics during the past biennium, namely, the College Practice House. This house was open to the first group of six students in October, 1917, and although the temporary building rented for two years by the College is far from ideal, the movement has abundantly justified the associated outlay. Even during the initial stages the students have been quick to recognize the benefit they derive, not only from the actual practice in the many phases of housekeeping for a group of eight persons, but from the training in good methods, in a sense of time and in capacity for cooperative work. Six weeks residence in the Practice House is now required of all Seniors who propose to graduate in Home Economics. Nevertheless, seeing that no home is complete without children, for whom it should constitute the seedbed of all good habits, no School of Home Economics can be complete without provision for practical as well as theoretical training in their care.

Mention must here be made of the unusually complete equipment now available for all the work carried on in each Department of the School, an equipment surpassed by few Schools of Home Economics in the country. The installation of a small Departmental Library calls for special notice; as does also the exceptional provision made for training students in Cafeteria, Lunch Room or Institutional Management and Cooking, due to the necessity for opening a new dining room for the Faculty and civilian students in the Women's Building, consequent upon the conversion of the former cafeteria into a Mess Hall for use by the S. A. T. C. These courses should attract numerous students at a moment when many Home Economic teachers are required to organize and manage cafeterias in High Schools; while the growing custom of eating in cafeterias and lunch rooms demands that these establishments shall be assisted to maintain a high standard of public health by the aid of well trained women managers, who see in this development of modern life an extension to the wider sphere of public life of the care of human beings, hitherto exercised only in the home circle. A recent writer has described as "Municipal Housekeeping" this extension of women's responsibility for the quality of the food and its suitable preparation for the meals furnished in public eating places, as well as for the protection of the food supply in every state of its production, storage and distribution. There is no doubt that the women of this State are already hearing this call for public service, and will welcome the opportunity to prepare themselves to meet it in any of its many forms.

The necessary associated training in business methods in these and certain other courses is also provided for Home Economic Students, thanks to the sympathetic cooperation of the School of Commerce, which now offers classes designed specially for this purpose; appreciating the fact that material benefit to the community will follow the participation of trained women in the preparation of food and clothing in commercial concerns as well as in the family circle.

The daily preparation of all forms of nourishment needed by the S. A. T. C. students, temporarily under hospital care, is carried on in the diet kitchen of the Women's Building, under the supervision of the Professor of Dietetics, Miss Jessie Whitacre, and affords a further, unrivaled opportunity for graduate training as Assistant Dietitians in Hospitals or Institutions or for demonstration to less advanced students of the essentials of suitable diet for the sick and convalescent.

It is with this object of meeting to the fullest extent the needs of the community, of utilizing to the utmost the resources of the School and of adapting to varied tastes and temperaments the subject matter of Home Economics that several new departures are being made. In spite of the fact that the main object always in view is the preparation of each student as completely as is possible for family life, it is also necessary to make provision for those who are called upon to fill positions of responsibility outside the home—connected in one way or another with the promotion of human welfare. To this end provision is now made for the special studies called for by students who desire to graduate as Institutional Managers, Assistant Dietitians, as Extension Workers or as experts in Textiles and Clothing in addition to the pre-existing opportunities for graduation as home makers or teachers of Home Economics. Vocational students are also afforded the opportunity to gain Certificates of Efficiency, if they pursue, for not less than two years, courses of study designed to fit them to be Managers of Lunch Rooms, or Laundries; as experts in Housekeeping, or, if independent of remuneration, as trained Social Workers; for, in these days, it is well understood that good intentions alone do not constitute preparation for public responsibility.

The cultivation of national health is assuming a new importance in public opinion, and seeing that the standard of health depends upon the home life of a people this, if ever, is the hour in which to urge all present and prospective homemakers to avail themselves of the opportunities offered to them in this School, to raise the standards of health and of home life in this State to the level now possible by the aid of modern knowledge, supplemented by trained, intelligent practice.

To stimulate this practical application of health principles to daily life among students registered in the School of Home Economics, who should be conspicuous among their fellows for their standards of health, conduct and dress, Mrs. Lois Hayball, will bestow in 1919 the first "Lois Hayball Medal", to be awarded annually to a junior or senior student in the School of Home Economics on the following basis:

(a) Qualities of womanhood.

(b) Evidence of application of Home Economic principles in every relation of daily life.

(c) Proficiency in scholastic attainments.

This is a departure unique in the annals of the Home Economics Movement of this country. The Medal will emphasize to the whole student body the dignified position assigned to the study and immediate application of Home Economic principles, and is significant of the determination that, while the whole group of studies is pursued in a scientific spirit, the importance of prompt and skillful application is held ever in view.

To sum up: the activities of this School are planned throughout to meet the needs of the State and its people during the present critical years. They are designed:

(1) To awaken in all students a sense of the dignity and latent potentialities of human life, and to arouse in them a realization of their personal responsibility for the production, development and maintenance of that life at the highest attainable level.

(2) To emphasize the place and purpose of family life, its national importance and far reaching influence, therefore of the duty to secure for it stability and efficiency, by the study of its

needs and by training in the sciences and arts necessary to their fulfillment.

(3) To demonstrate the close interrelation of the home and its habits with every phase of national life. Evidence of physical disabilities or of mental incompentence among the professional, commercial or industrial population, for instance, reflects upon the home makers of the nation and indicates flaws in the care and conduct of human life in their homes; flaws no longer to be tolerated in the light of modern knowledge.

(4) To assist women to prepare for their new political responsibilities by fitting them to meet the obligations associated with all rights; obligations, which in this case must be ever closely associated with the care and uplift of human life at all ages and under all conditions.

Respectfully submitted,
ALICE RAVENHILL,
Director, School of Home Economics.

THE SUMMER QUARTER

To the President of the College:

Sir: I have the honor to report herewith the Summer Quarter for the last biennium.

The total attendance for the Summer Quarter 1918 was 232—222 attended the first term and 95 the second term. Among the latter were 10 new students. Our enrollment last year was 196. This year there were 202 women and 30 men. They came from the following localities:

Utah by counties:

Cache	138
Carbon	1
Beaver	2
Box Elder	15
Davis	1
Emery	3
Iron	3
Juab	3
Kane	2
Morgan	4

Salt Lake	5	
Summit	4	
San Pete	10	
Utah	3	
Wasatch	1	
Weber	10	
		205
Idaho	22	
Wyoming	3	
Nevada	1	
Mexico	1	
		27
Total		232

The instructional staff consisted of the following men and women: (The length of teaching service is given immediately following each name.)

Frank R. Arnold	6 weeks
James Christian Hogenson	6 weeks
Franklin Stewart Harris	6 weeks
Calvin Fletcher	12 weeks
George Richard Hill	6 weeks
Niels Alvin Pedersen	12 weeks
Alice Ravenhill	3 weeks
Ralph Orlando Porter	6 weeks
Jean L. Cox	3 weeks
Charles R. Johnson	9 weeks
Mosiah Hall	6 weeks
Byron Alder	6 weeks
Charles Tarry Hirst	12 weeks
Sara Huntsman	6 weeks
George Ballif Caine	6 weeks
David Earle Robinson	6 weeks
Johanna Moen	3 weeks
Georgia Borg Johnson	6 weeks
George Gardner	6 weeks
Joseph R. Jensen	6 weeks
Zenas Beach Wallin	12 weeks
Joseph Devonald Howell	12 weeks
Charles James Sorenson	6 weeks

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Hattie Smith	6 weeks
Rozina Skidmore	6 weeks
Ruby Beers	9 weeks
Olive Jensen	6 weeks
John Ray Tippetts	12 weeks
Mrs. H. P. Huey	3 weeks
Herman C. Ramsperger	6 weeks

Instruction was given in the following subjects, (the number in each class is given with the subject):

Agriculture:	
Soils	3
Field Crops	5
Advanced Field Crops	2
Market Types	6
Dry Farming	2
Farm Management	3
Poultry	3
Vet. Science	1
Art 27	20
Art, Educational	28
Botany II and III	3
Chemistry I	8
Chemistry II	6
Chemistry IV	3
Dressmaking	7
Economics	19
Elocution (advanced)	8
English:	
American Lit.	17
Shakespeare	12
19th Century	
Poetry	26
Essay	9
Recent Lit.	17
Food Conservation	11
French I	1
French II	1
French, Teachers' Course	1
Geology	9
Geometry, Plane	1
Household Administration	5

Health Work in Schools	26
History, Recent	10
Library Science	7
Millinery	7
Normal Music Training	48
Nature Study	4
Physical Development of Childhood	34
Physical Education	37
Psychology	28
Principles of Education	49
Physiography	7
Penmanship	25
Practice House	4
Physiology	6
Red Cross	18
Sociology	17
Sociology, Educational	27
Sociology, Rural	16
Stenography	8
Textiles	10
Typewriting	11

The quarter session of the Summer School was more successful than the most optimistic would care to predict. Students who registered at the beginning of the quarter for second term work looked forward to a period of lonesome drudgery, but were surprised and delighted with the final result. The teachers put into their class instruction the same earnest effort that characterized the usual winter's work. In only a very few cases did they try to evade the organization of classes, thus making it possible to meet practically all demands made upon the institution.

The lecture course was up to the usual high standard. Dr. Wm. B. Otis of New York, Supt. Wilson of Topeka, Kansas, and Dr. Jerome Hall Raymond of Chicago, came to us from the East, and Professor N. Alvin Pedersen represented our faculty.

The social needs of the students were well looked after by the Student Body officers and the Faculty Women's League with the result that many expressed regret at having to leave at the close of the first term.

With the experience of the year, I recommend for your consideration:

a. That the summer quarter become a permanent institution at the College.

b. The retaining of a strong corps of instructors, including as many heads of departments as possible.
c. The organization of classes in all subjects published in the announcements and called for by students.
d. That the arrangement of courses, credits, etc., conform as closely as possible to the work of the other quarters of the school year, but that provision be made for those who desire only a six weeks' course.

Respectfully submitted,
JAMES H. LINFORD,
Director.

THE EXPERIMENT STATION

To the President of the College:

Sir: I have the honor to submit herewith a report of the Agricultural Experiment Station for the last biennium. In general the work has progressed very satisfactorily. The war has made necessary a number of adjustments in the work but on the whole the problems under investigation have been studied without serious interruption.

NEED FOR WELL-TRAINED MEN

The demand for trained scientists has been so great that a number of the staff members have been taken away by flattering offers from the outside. This, in some cases, has been unfortunate since work that had been carried on for several years had to be abandoned. In order to retain the highest efficiency it will be necessary to have at our command sufficient funds to hold our capable experimenters. It is a poor policy to allow men to leave their work after they have become thoroughly acquainted with it and before their projects are completed.

Experimentation calls for special training as well as a high degree of intelligence. In order to prosecute successful research work a man must be master of his subject. It is imperative that he be familiar with all the work that has ever been done in his special field. He must be constantly on the alert for new work and keep thoroughly up to the times; otherwise he will repeat work that has been done by some other experimenter.

We are now fortunate in having on the Station Staff men who meet the requirements mentioned above and every effort should be made to keep them. They should also be well supplied with the necessary equipment and facilities for work in order that the State may take advantage to the fullest extent of their capabilities.

WORK DONE BY DEPARTMENTS

The working unit of the Experiment Station is the department. A strong department staff means a high grade of work. We are very fortunate in having at the head of all the departments men of broad training and sound judgment. This means that the only limiting factor is funds with which to employ assistants and conduct the work.

The experimental work is administered under the following departments: Agronomy, Animal Husbandry, Chemistry, Bacteriology, Irrigation and Drainage, Geology, Physics, Entomology, Plant Pathology, Horticulture, and Poultry Husbandry. Several other departments of the College are, however, coöperating with those named.

EXPERIMENTS IN AGRICULTURAL ENGINEERING

The entire rural problem is not covered by the present departments of investigation. Many important fields have had to be left untouched since it has been found better not to spread the limited funds over too many activities. These other problems are, however, none the less deserving of investigation and must be given attention before rural life can reach the standard demanded by its importance to the welfare of the nation. An adequate and self-perpetuating country life cannot be made simply by teaching people how to raise grain and fruit, and how to manage and improve livestock. The country might be filled with farmers well trained in these branches and still lack many of the elements necessary for a well-balanced and efficient rural community. Many problems having to do with the entire community rather than with the individual farmer must be solved by men with training for that kind of work rather than by those trained to produce crops and livestock on a single farm. Again, many questions on the individual farm have to do with construction rather than with production from the soil. These questions can be answered properly only by men with special training.

In the past agricultural colleges have given their attention to the direct questions of farming, but now the entire rural problem must be met. The farm must be a desirable and healthful place to live. The buildings must be so arranged and constructed as to give the maximum of efficiency and comfort and at the same time have proper sanitary provision. The rural roads must be such that the farmer can move his crops with small expense, and go to town with comfort and speed. The machinery of the farm must be so constructed and cared for that it will be reliable and work economically. The limited supply of irrigation water must be so used as to produce maximum returns. There must be factories to change the raw materials of the farm into high-priced finished products. All these necessities demand men trained for them.

These questions should be made subjects of investigation on the part of the experiment stations, and means for this purpose should be provided just as rapidly as possible. Already the importance of the subject has become apparent to national law makers and a bill is pending in Congress to give aid to engineering experimentation. The State should also prepare to do its part.

PROJECTS UNDER INVESTIGATION

In order to secure the greatest efficiency it is desirable to organize the work under definite projects. Miscellaneous experimenting on many subjects without a definite plan rarely accomplishes anything. Much better results are secured by staying rather closely with a given line of investigation.

The following definite projects are being studied:

1. Nephi Dry-Farm Substation.
2. Other Dry-Farm Stations.
3. Irrigation Practice at Greenville; Beets, Potatoes, Oats and Alfalfa.
4. Vegetation House.
5. Moisture, Soil, and Crop Relations.
6. Sugar-Beet Breeding.
7. Commercial Beet-Seed Production.
8. Potato Breeding.
9. Rotations and Fertility Tests.
10. Miscellaneous Field Studies.
11. Action of Alkali.
12. Soil Moisture Studies.
13. Sevier Farm.
14. Cedar City Farm.
15. Pumping for Irrigation, and Canal Improvement.

16. Amount of Water to Apply (Size of Irrigation).
17. Soil Moisture Constants.
18. Irrigation Institutions.
19. Dairy Rations.
20. Hog Rations.
21. Steer Feeding.
22. Factors influencing Bacterial Activities of the Soil (Ammonification and Nitrification Studies).
23. Permanent Fertility Studies.
24. Survey of Composition of Irrigation Waters.
25. Ground Water Development.
26. Frost Studies.
27. Alfalfa Weevil.
28. Alfalfa Seed Insects.
29. Wheat Straw Worm.
30. Apple Leaf Roller.
31. Potato Diseases.
32. Peach Diseases.
33. Canning-Crop Diseases.
34. Plant Disease Survey.
35. Pasture Survey.
36. Poultry Breeding.
37. Incubation Studies.
38. Canning Crops.
39. Utilization of Horticultural Products.
40. Horticultural Survey.
41. Breeding of Horticultural Plants.
42. Grain Varieties.
43. Grasshoppers.
44. Rodent Pests.
45. A Study of Bombyliidæ.
46. Introduction of Chinese Mantid.
47. Lighting Poultry Houses.

PUBLISHED RESULTS

The measure of accomplishment in experimentation is usually determined by the quality and volume of the publications issued. It is useless to experiment unless the results are made available to the public. The past biennium has been the richest in the history of the Station in the publications issued by members of the Staff. The following is a list of the bulletins and circulars published by the Station with the total number of pages:

BULLETINS:

No.	Title	Authors	No. in Edition	Pages	Total Pages
148	Breeding for Egg Production, Pt. I	E. D. Ball and Byron Alder	9000	60	540,000
149	Breeding for Egg Production, Pt. II	E. D. Ball and Byron Alder	9000	70	630,000
150	Further Studies of the Nitrogen Content of the Country Rock	Robert Stewart and Wm. Peterson	8000	20	160,000
151	The Freezing of Fruit Buds	F. L. West and N. E. Edlefsen	15000	24	360,000
152	The Effect of Soil Moisture Content on Certain Factors in Wheat Production	F. S. Harris and H. J. Maughan	15000	15	225,000
153	Selecting Dairy Bulls by Performance	W. E. Carroll	15000	19	285,000
154	Irrigation and Manuring Studies, II	F. S. Harris & D. W. Pittman	15000	29	435,000
155	The Beet Leafhopper and the Curly-Leaf Disease That it Transmits	E. D. Ball	9000	56	504,000
156	The Irrigation of Sugar-Beets	F. S. Harris	17000	24	408,000
157	The Irrigation of Potatoes	F. S. Harris	17000	20	340,000
158	Soil Moisture Studies Under Dry-Farming	F. S. Harris and J. W. Jones	10000	51	510,000
159	Soil Moisture Studies Under Irrigation	F. S. Harris & A. F. Bracken	10000	26	260,000
160	Important Factors in the Operation of Utah Irrigated Farms	E. B. Brossard	16000	48	768,000
161	Orchard Heating	F. L. West and N. E. Edlefsen	14000	42	672,000
162	A Quick Method of Obtaining Accurate Individual Egg Records Without the Trap Nest	Byron Alder and A. D. Egbert	12000	12	144,000
163	Composition of the Irrigation Waters of Utah	J. E. Greaves & C. T. Hirst	7000	43	301,000
164	Factors Affecting the Depth of Sowing Various Crops	F. S. Harris & H. J. Maughan	10000	20	200,000
165	Labor Costs and Seasonal Distribution of Labor in Irrigated Crops	L. C. Connor	10000	24	240,000

CIRCULARS:

21	Dry-Farming in Utah	F. S. Harris & A. D. Ellison	17000	35	595,000
22	Some Sources of Potassium	C. T. Hirst and E. G. Carter	8000	12	96,000
23	The Seed Situation in Utah	Geo. Stewart	15000	31	465,000
24	Licensed Stallions in Utah During the Season of 1916	W. E. Carroll	8000	25	200,000

25	Preserving Eggs for the Home	Byron Alder	17000	8	136,000
26	Storing Vegetables for Winter	M. C. Merrill	15000	8	120,000
27	Licensed Stallions in Utah During the Season of 1917	W. E. Carroll	6000	27	162,000
28	Contagious Abortion in Mares and Cows	H. J. Frederick	12000	18	216,000
29	The Control of Rodent Pests	C. J. Sorenson	15000	12	180,000
30	The Codling Moth	Harold R. Hagan	15000	4	60,000
31	The Alfalfa Weevil	Harold R. Hagan	15000	8	120,000
32	Feeding Farm Animals	W. E. Carroll	12000	23	276,000
33	A Method of Feeding Orphan Lambs	W. E. Carroll	10000	8	80,000
34	Sugar-Beeting Production in Utah	F. S. Harris	15000	32	480,000
35	Licensed Stallions in Utah During the Season of 1918	W. E. Carroll and N. I. Butt	8000	16	128,000
	Total Pages				10,296,000

It will be noted that the Station has issued an aggregate of more than ten million pages of reading matter during the two years.

In addition to what has been published by the Station, the results of many of the experiments have been published in technical journals and other places. A partial list of these publications is given below.

1. Western Agriculture—Members of Station Staff. Edited by J. A. Widtsoe and George Stewart. Webb Publishing Company, 464 pp. 197 Figs.

2. Effect of Irrigation Water and Manure on the Nitrates and Total Soluble Salts of the Soil—F. S. Harris and N. I. Butt. Jour. Agr. Research, Vol. VIII, No. 9, pp. 333-358, February 26, 1917.

3. Sugar-Beet Seed Production in Utah—F. S. Harris. Third Biennial Report, State Bureau of Immigration, Labor and Statistics, 1915-1916, pp. 81-87.

4. Movement and Distribution of Moisture in the Soil—F. S. Harris and H. W. Turpin. Jour. Agr. Research, Vol. X, No. 3, pp. 113-155, July 16, 1917.

5. Soil Factors Affecting the Toxicity of Alkali—F. S. Harris and D. W. Pittman. Jour. Agr. Research, Vol. XV, November, 1918.

6. The World Without Science—F. S. Harris. Transactions Utah Academy of Science, Vol. I, pp. 178-184.

7. An Accurate Method of Obtaining Individual Egg Records Without the Trap Nest—Byron Alder. Journal of the American Association of Instructors and Investigators in Poultry Husbandry, Vol. IV, No. 3, p. 31.

8. Studies on Capacities of Soils for Irrigation Water, and on a New Method of Determining Volume Weight—O. W. Israelsen. Jour. Agr. Research, Vol. XIII, No. 1, pp. 1-36, April 1, 1918.

9. Observations on the Embryonic Development of the Mantid Paratenodera sinensis—Harold R. Hagan. Journal of Morphology, Vol. XXX, No. 1, pp. 223-243, December, 1917.

10. Best Molasses as a Feed for Weaning Pigs (Summary)—W. E. Carroll. Transactions Utah Academy of Science, Vol. I, pp. 205-207.

11. Nitrous Nitrogen in Irrigated Soils—J. E. Greaves, Robert Stewart and C. T. Hirst. Soil Science, Vol. III, No. 2, pp. 149-154, February, 1917.

12. Influence of Crop, Season, and Water on the Bacterial Activities of the Soil—J. E. Greaves, Robert Stewart and C. T. Hirst. Jour. Agr. Research, Vol. IX, No. 9, pp. 293-341, May 28, 1917.

13. The Influence of Arsenic on the Bacterial Activities of a Soil—J. E. Greaves. The Scientific Monthly, pp. 204-209, September, 1917.

14. Some Factors Influencing the Quantitative Determination of Nitric Nitrogen in the Soil—J. E. Greaves and C. T. Hirst. Soil Science, Vol. IV, No. 3, pp. 179-205, September, 1917.

15. Does Crop Rotation Maintain the Fertility of the Soil?—J. E. Greaves. The Scientific Monthly, pp. 458-466, May, 1918.

16. Origin of Alkali—Robert Stewart and William Peterson. Jour. Agr. Research, Vol. X, No. 7, pp. 331-353, August 13, 1917.

17. The Alfalfa Industry in Utah—George Stewart. Second Biennial Report, State Bureau of Immigration, Labor, and Stati tics, 1914-1915, pp. 73-76.

18. Influence of Moisture on Seed Production and Vitality—George Stewart. Report of Idaho Seed Growers' Association for 1917-18, 7 pp.

In addition to these technical papers, hundreds of popular articles on different phases of agriculture have been contributed by members of the Station Staff to Farm journals, newspapers, and other publications.

UNPUBLISHED RESULTS

The publications that have been issued represent only the work that has been completed. Most of the investigations are still unfinished. Some of them will require years for their completion. Experimentation is essentially slow. Results of value, in most cases, cannot be obtained in a hurry. One season's work taken alone is not trustworthy since it may have been influenced by some unusual climatic condition. If the results of this one trial were taken, incalculable injury might be done. All the projects listed above are still unfinished.

WAR WORK

During the past year the attention of the Experiment Station has been focused largely on war work. This has not meant the abandonment of the more theoretical studies, but these have -in many cases been overshadowed by some of the more pressing problems involved in the campaign for increased food production and conservation.

Each department of the Station has done some strictly war work in addition to carrying forward its regular research projects. An attempt has been made wherever possible to simplify the experimental work. Instead of adding new lines, an effort has been made to find new applications for previous discoveries.

The members of the Station Staff have constantly been called to serve on committees of the State Council of Defense, the Food Administration, the Crop Pest Commission, and to do other similar advisory work. In some cases work of this kind has taken most of the time of Staff members but we have felt justified in permitting this during the emergency.

IRRIGATION INVESTIGATIONS

The irrigation investigations of the Station have been given, as usual, a place as one of the most important phases of work being investigated. At Greenville the studies have been continued on the irrigation of sugar-beets, potatoes, oats, corn and alfalfa. Results of five years' tests on sugar-beets and potatoes have been published and if the findings reported in these bulletins were put into general practice throughout the State hundreds of thousands of dollars worth of crops could be added to the production of the State each year.

The work at Richfield has been continued on a forty-acre tract and the results are very promising. The farmers of the Sevier

Valley will be able to use irrigation water much more effectively as a result of the experiments being carried on at this place.

One important phase of the irrigation study is the investigation of the amount of water to apply at each irrigation on different soils. At the present time there is no definite practice based on scientific studies of the size of stream to use, the length of the rows, and other factors entering into the economical application of water. It is hoped that the studies being made will be of service, particularly on the lighter soils where there is likely to be a great deal of waste through percolation.

The Department of Irrigation has rendered its service in the transferring of water from farmers who had it in abundance to those who were short. The farmers have unselfishly sacrificed their personal interest for the good of the whole during the war emergency. It seems promising that the excellent results secured by some of these water transfers will result in permanent readjustments.

PUMPING FOR IRRIGATION

The call for increased production during the war and the need to prepare for the reconstruction period after the war has made it seem advisable to give unusual attention to the development of new agricultural areas of the State. In the southwestern part of the State considerable attention is being given to the possibility of pumping for irrigation. Numerous wells in that section have been dug by the settlers who have no means for testing the capacities of these wells and are consequently unable to determine the size of pump and engine to use. The Station has purchased machinery to make these tests and it is believed that with the studies we are now prepared to make, a great impetus will be given to pumping for irrigation in many parts of the State. Without doubt many thousands of acres can be added to the productive area of the State by the use of underground waters.

GROUND WATER DEVELOPMENT

Rather extensive studies are being made of the geological conditions of the various parts of the State for determining the various areas in which ground water can be found in sufficient quantity for irrigation. Measurements of flow are being determined on many artesian wells with the object of determining methods of handling these wells in order to make them of greater service to agriculture. The complete utilization of the underground waters will materially increase the area where crops can be raised profitably. We feel that every effort should be made to determine the sources of water since production is largely a question of water supply.

WATER RIGHTS

One factor that has retarded the development of the State as much as any other is the great amount of litigation over water rights. Hundreds of thousands of dollars are spent uselessly in the courts in an attempt to adjust titles to water and after these extensive litigations conditions are rarely made permanent. The department of Irrigation has, therefore, given considerable attention to the adjustment of rights and to legislation that will help to bring this about. There has been constant consultation with the State commission on irrigation legislation.

DRY-FARM INVESTIGATIONS

Investigations have been continued on the experimental farms at Nephi, Kanab, and Cedar City. At Nephi extensive investigations on agricultural methods, crop breeding for arid conditions, a study of new crops, and a number of other projects have been carried on in cooperation with the United States Department of Agriculture. Much scientific, as well as practical, material is being accumulated at these stations. The results of part of this work have been published during the last two years.

At Kanab results have been very satisfactory. An effort is being made at this place to determine the types of crops that are best suited to dry-farming soils and some of the important farm practices. During 1917 a very severe drouth interfered somewhat with the work but on the whole the results were gratifying.

At Cedar City the results have not been so satisfactory. Two years of almost complete drouth have made it difficult for any crops to succeed. We are scouring the country, however, to secure crops that may be relied upon for these and other conditions.

THE SOUTHERN UTAH EXPERIMENTAL FARM

As a result of a recommendation to the last Legislature the Southern Utah Experimental Farm was abandoned for experimental purposes. The irregularity of the soil, the nearness of ground water and a number of other factors rendered the tract unsuitable for experimental work. The demonstration features of the farm had been conducted a sufficient length of time to give all the results that were worth while obtaining.

NEW EXPERIMENTAL DRY-FARM IN GARFIELD COUNTY

The State contains large areas of good land at high altitudes with short seasons. Much of this land has sufficient rainfall for dry-farming but we have not yet found crops that are well adapted to the short season, nor do we know what are the best culture methods under these conditions. In order to solve some of these problems an experimental farm was established at Widtsoe, Garfield County. The land was furnished by the County Commissioners and is to be retained by the Station as long as it is wanted for experimental purposes.

SUGAR-BEET SEED

The war has demonstrated the importance of experimental work in the case of sugar-beet seed production. During the years when this work was carried on it seemed to some people unnecessary since seed could be obtained so cheaply from Germany, but with the opening of the war and shutting off of the European source of seed the entire beet-sugar industry was in jeopardy. Without the production of domestic beet seed it would have been impossible to continue growing beets. The years of experimental work that had been conducted by the Utah Experiment Station enabled it to give definite advice regarding methods of producing domestic seed. As a result it was possible at once to meet the emergency.

CROP BREEDING

The arid sections require crops that are different from those adapted to the humid part of the country. It was found necessary, therefore, in order to secure the highest production to breed crops that are adapted to local conditions. The Experiment Station is endeavoring to meet this condition by carrying on breeding work with potatoes, wheat, oats, barley and tomatoes. Work of this kind requires many years for completion but distinct progress is being made.

ALKALI STUDIES

In all arid regions alkali is likely to be present in the soil and render it valueless for agriculture until reclaimed. Considerable attention has been given by the Station to this problem in order to assist settlers in avoiding undesirable land and also helping to find the best methods of reclamation. The vast amount of experimental data that has been accumulated should be of especial value during the post-war reconstruction period.

STOCK FEEDING

The scarcity of feeds and the high prices of meats during the war have called for unusual efficiency in feeding livestock. This need has been met in part by experiments in the feeding of hogs, steers, and cows. The best feeds to be used under various conditions have been studied and comparative costs obtained.

NSECT PESTS AND CROP DISEASES

A phase of the work that has required constant attention is the control of insect pests and plant diseases. The destruction that is often wrought by these agencies has made necessary a great amount of work in view of the importance of conserving every possible bit of food material. The findings of the Station regarding the control of several of these troubles were used to save a loss of many thousands of dollars.

HORTICULTURAL BY-PRODUCTS AND CANNING CROPS

The studies made by the Horticultural Department on the utilization of by-products of the farm, orchard, and garden have been of great practical value in answering war needs for the conservation of food. Going along with this work, important studies have been made of canning crops. The war has produced a great demand for all kinds of canned goods. The supplying of this demand and the problems arising therefrom have enabled the Station to be of distinct service to the industry.

POULTRY STUDIES

As a result of many years' breeding of poultry, two bulletins were issued. These have thrown new light on the entire poultry industry and have attracted attention throughout the world. The studies show that the old methods of judging the value of a hen on the first year's record are untrustworthy; the record of several years' laying is necessary.

Some very high laying strains of hens have been developed during the experiments. A method of testing the individual laying of hens without the trap nest has been worked out by the Station. This method is attracting wide attention.

Studies have been made on the lighting of the houses during winter to increase the laying of the hens and, while it is uncertain as yet what effect this practice will have on the total number of eggs laid during the year, it has been demonstrated conclusively that winter laying can be greatly increased. This is important since the price of eggs is much higher during the winter months than during the time of heavy laying under normal conditions.

FROST STUDIES

One of the factors affecting the profitableness of the fruit industry is the prevalence of frost during the spring. In meeting this condition the heating of orchards has been advocated. A study of this whole problem has shown, however, that for Utah it rarely pays to heat orchards to keep off frost. The expense is not justified by the returns.

SOIL BACTERIA

The fertility of the land is very closely associated with the growth of microscopic life in the soil. The Department of Chemistry and Bacteriology has been conducting investigations of the conditions affecting bacterial activity in the soil. The results obtained have attracted international attention. Technical studies of this kind are necessary in order to understand the practices required in developing permanent systems of agriculture.

SOIL SURVEY

Less than 5 per cent of the area of Utah is cultivated. Every year hundreds of new settlers come into the State and attempt to develop farms on new lands. In many cases, on account of inexperience, poor lands are selected and after several years of failure the tracts have to be abandoned. In order to prevent conditions of this kind as well as to assist farmers of well established farming communities in working out better systems of farm management, a survey of the soils of the State has been begun. Information obtained in this survey will be especially useful in the new agricultural development that is sure to follow the close of the war. There is certain to be an unprecedented call for farming land and the State should have definite information on the various tracts that are available for settlement.

CHANGES IN PERSONNEL

The following members of the Station Staff have resigned during the biennium: H. J. Maughan, H. P. Anderson, O. P.

Madsen, A. O. Larson, Bervard Nichols, A. L. Wilson, N. I. Butt, W. J. Merrill, I. J. Jensen and N. E. Edlefsen.

The appointments made to the Staff were as follows: Dr. M. C. Merrill, Horticulturist; T. H. Abell, Assistant Horticulturist; Harold Goldthorpe and Yeppa Lund, assistants in Chemistry and Bacteriology; I. J. Jensen, assistant in Agronomy; L. F. Nuffer and Lucian Mecham, Jr., Assistant Plant Pathologists; K. B. Sauls, Secretary to the Director; Scott Ewing, Assistant Physicist; Reuben Hansen, assistant in Irrigation and Drainage; Dr. D. S. Jennings, in charge of soil surveys; Dr. Willard Gardner, Associate Physicist; and R. J. Becraft, in charge of range management studies.

Mr. E. G. Carter was given a year's leave of absence to act as sanitary inspector at one of the army camps and Dr. W. E. Carroll was given leave for the period of the war to help in nutrition studies in the army.

NEEDS

The needs of the Experiment Station have been summarized in a budget that has been submitted to the Governor. The State should look on the money appropriated for experimental purposes strictly as an investment since it will be returned in value many times. Single experiments have returned to the State more than has been appropriated to the Experiment Station since its founding.

The war has demonstrated the economic value of technical information and there is no doubt that the closing of the war will see an awakening in experimentation throughout the world.

Respectfully submitted,
F. S. HARRIS,
Director, Experiment Station.

THE EXTENSION DIVISION

To the President of the College:

Sir: I have the honor to report herewith the Extension Division for the past biennium.

Extension work in Utah during the past biennium has been expanded to such an extent that its representatives are in every county in the State. All counties are served by county agricultural agents, and by club workers, mostly on part time. Half of the counties have home demonstration agents.

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Although this expansion of the work was rapid, in order to meet the needs of the emergency, a constant effort was carefully made to establish it along permanent lines. To this end the coöperation of county governments was secured in each of the counties where the work was new, and a Farm Bureau organization inaugurated. In all cases the response of the people has been most gratifying and constitutes an almost universal approval of the purposes and work of the College, and the Government, through the Extension Division.

Calls to service have come incessantly from many sources during the biennium just past, and they have been answered as promptly and completely as our limited funds would permit. Utah increased her food production and conservation in accordance with and beyond that called for by the National program; due, in a large measure, to the splendid, organized, and consistent efforts of the field forces of the Extension Division. They have worked devotedly and without cessation under adverse conditions in many cases, in order that the desired results could be obtained. They have been active in Liberty Loan and War Savings Stamp campaigns, along with other patriotic endeavors.

The State Farm Bureau organization and the local home economic associations have made themselves responsive instruments in the work. The patriotic, intelligent, and industrious people of Utah are, of course, responsible for the gratifying record of the year.

COOPERATION

Working arrangements with other divisions at the College have been maintained pleasantly. A very liberal policy has been maintained by all departments and real team work has existed. Support from all sides came to the Extension Division when the call for increased production was received. All workers at the College volunteered their services. Work with the College and Experiment Station has been most satisfactory and pleasant throughout the year.

In Utah the work of the Food Administration has strengthened the work of the Extension Division. By having a member of our staff on the staff of the Food Administration all work of mutual interest has been handled satisfactorily. The Food Administrator has been most liberal in giving the Extension Division credit for the good work done in Utah in production and conservation.

The State Council of Defense has encouraged and aided the work of the Division and the strength of this powerful organization has meant much when food production drives were on.

Work with State departments has been harmonious in most cases and some valuable coöperative work has been carried out. The State Live Stock Sanitary Board has done good work in controlling live stock diseases, and has cooperated with the counties through the Extension Division in furnishing poison for destroying ground squirrels.

Relations with representatives of the Department of Agriculture from Washington have been pleasant in all cases.

Some excellent work was done during the year in coöperation with the Forest Service, 67 meetings being held in principal stock raising districts, with a total attendance of 3912.

Some excellent work was done during the past year in plant disease control due to cooperataion with the Bureau of Plant Industry, a specialist having been available since December 16, 1917.

Live stock disease control work was handled in fine shape due to the generosity of the Bureau of Animal Industry. Work in dairying, hog production, and poultry production was stimulated by the representative from the same Bureau.

Successful work in eradication of rodents was conducted due to coöoperation with the Bureau of Biological Survey.

The work in irrigation and drainage was continued through the year and is made possible by coöperation with the Office of Public Roads and Rural Engineering.

Coöperation with the Office of Markets aided our work materially during the year.

The work of the Farm Help Specialist representing the office of Farm Management was greatly appreciated by the Division and by the farmers of the State.

CONVENTIONS

Due to emergency work incident to the war, numerous conferences of Extension workers have been held during the past biennium especially since the declaration of war. Most important of these were held at the time of the Annual Round-up at Logan. In each case plans were inaugurated to increase the production of the State, and bring about a stricter conservation of food. In addition, at the convention in 1918, a modified type of Farm Bureau was presented, and adopted. This new type is made to include the women, boys, and girls as members. It is in force in one county of the State, and is being adopted rapidly in others.

EQUIPMENT

Due to the great expansion of the work some more office room had to be secured.

A large number of desks and filing cabinets were added to the equipment so that all workers were fairly well taken care of. During the year the Extension Division in cooperation with the College and the Experiment Station purchased a mimeograph outfit and a blue print machine. Tables, bulletin and magazine racks have been added to the offices as needed.

A model food exhibit was secured for the home demonstration work. Equipment was added to most of the old county agent offices and some equipment secured for the new men. Desks, filing cases, and bulletin racks have been secured for most of the field workers.

PERSONNEL

There have been several changes in the staff during the biennium, and a great many additions. Director John T. Caine III left in June 1918 to take up Government work, and William Peterson was appointed Acting Director. The following workers resigned:

Wallace Sullivan, County Agent, Carbon-Emery Counties.
J. R. Jennings, County Agent, Washington County.
A. B. Ballantyne, County Agent, Utah County.
Martin L. Harris, County Agent, Duchesne County.
A. F. Bracken, County Agent, Morgan-Summit Counties.
D. S. Jennings, County Agent, Utah County.
David Gourley, County Agent, Washington County.
Marion L. Harris, County Agent, Rich County.
Horace Argyle, County Agent, San Juan County.
N. E. Edlefsen, County Agent, Sevier County.
E. W. Stephens, Assistant State Leader, Club Work.
Clyde Lindsay, County Agent, Utah County.
Mark H. Green, Field Agent in Marketing.
Jean Cox, Home Demonstrator, Salt Lake City.
Josephine Burton Bagley, Home Demonstrator, Utah County.
Mrs. Elva Kelly, Home Demonstrator, Utah County.
Anna Christiansen, Home Demonstrator, Box Elder County.

The following appointments have been made since January 1st, 1917:

Specialists

L. A. Richardson, Farm Management Demonstrator.
J. Edward Taylor, Field Horticulturist.
Mark H. Greene, Field Agent in Marketing.
J. W. Watson, Farm Help Specialist, U. S. D. A.
H. W. Sanborn, Extension Poultry Husbandman, U. S. D. A.
H. W. Willis, Hog Cholera Control, U. S. D. A.
H. B. Joy, Pork Production, U. S. D. A.
Alma Wilson, Plant Disease, U. S. D. A.
Rozina Skidmore, Domestic Art.

County Agents

W. W. Owens, Assistant County Agent Leader.
R. L. Wrigley, Cache County.
Lowry Nelson, Assistant County Agent Leader.
T. W. Bennion, San Pete County.
Lew Mar Price, Carbon County.
David Gourley, Washington County.
D. S. Jennings, Utah County.
E. R. Price, Wasatch County.
A. D. Egbert, Garfield-Piute Counties.
G. M. Hess, Duchesne County.
O. P. Madsen, Emery County.
M. L. Harris, Rich County.
A. E. Smith, Wayne County.
A. L. Christiansen, Tooele County.
N. E. Edlefsen, Sevier County.
W. J. Thayne, Davis County.
C. O. Stott, Grand-San Juan Counties.
Hugh Hurst, Kane County.
H. B. Woodbury, Juab County.
R. C. Pixton, Assistant, Utah County.
S. R. Boswell, Morgan-Summit Counties.
J. R. Jennings, Washington County.
Alma Esplin, Iron County.
D. F. Peterson, Millard County.
Clyde Lindsay, Utah County.
J. R. Tippetts, Washington County.
Wallace Sullivan, Carbon-Emery Counties.
G. F. Holmstead, Sevier County.

Home Demonstrators

Hortense White, Assistant Home Economics.
Mrs. Elva Kelly, Utah County.
Rena B. Maycock, Iron County.
Anna Christiansen Ure, Box Elder County.
Alice Holmstead, Sevier County.
Josephine Burton Bagley, Utah County.
Anna Edmunds, Salt Lake County.
Jean Cox, Salt Lake City.
Mary Lucile Lee, Davis County.
Edna Ladwig, Weber County.
Edith R. Lewis, San Pete County.
Minnie J. Smith, Wayne County.
Anna F. Otte, Cache County.

Boys' and Girls' Club Work

Henry C. Oberhansley, Assistant State Leader.
Bessie Eaton, Assistant State Leader.
Myrtle Davidson, District Leader.
A. I. Tippetts, District Leader.
L. Calder Smith, District Leader.
J. J. Andrews, District Leader.
O. H. Nelson, District Leader.
Clark Allred, District Leader.
J. A. Washburn, District Leader.

PUBLICATIONS

As fast as funds will permit, publications of value to the rural communities are being prepared and published. The circulars sent out so far, have been well worth while, and requests for them are received by every mail.

No.	Pages	Author	Title	Copies Printed
Circular	8	Gertrude McCheyne,	"Program Leaflet Home Economics Associations"	3500
Circular	8		Salina Round-up Program	1000
Circular	8		Ogden Round-up Program	
Circular	4	Gertrude McCheyne,	"Program Leaflet Home Economics Associations"	3500
Circular	16		Logan Round-up Program	3500
Circular	6		Cedar City Round-up Program	1000
Circular	12	J. C. Hogenson, Claire P. Dorius	"Reports of Achievement by a Few Boys and Girls of Utah, 1916"	1000
Circular	4	Gertrude McCheyne,	"Program Leaflet of Home Economics Associations"	4000

No.	Pages	Author	Title	Copies Printed
Circular	8	L. M. Winsor, J. W. Paxman	"Farming Possibilities in Escalante Valley"	2000
Circular	8	Gertrude McCheyne, Agnes Saunders,	"Program Leaflet of Home Economics Associations"	3500
Circular	16	J. C. Hogenson, C. P. Dorius, E. W. Stephens,	"Yearly Program and Instructions for Boys' and Girls' Club Work in Utah, 1917"	1000
Circular	20	J. C. Hogenson,	"Handicraft Work for Boys"	500
Circular	4	J. C. Hogenson,	"Instructions for Home Gardens"	1000
Circular	20	E. W. Stephens,	"Control of Farm Pests"	2000
Circular	4	Gertrude McCheyne,	"Preparedness"	3500
Circular	4	F. R. Arnold,	"A List of Books from the Literature of Rural Life"	500
Circular	8	Johanna Moen, Lavina Richardson, Blanche Caine Hyde,	"Practical Economies in Food and Clothing"	4000
Circular	24	Gertrude McCheyne, J. C. Hogenson,	"Preservation of Fruits, Vegetables, and Meats	10000
Circular	4	Gertrude McCheyne,	"Program Leaflet of Home Economics Associations"	3500
Circular	4	J. C. Hogenson,	"Planting Table"	5000
Circular	4	Gertrude McCheyne,	"Program Leaflet of Home Economics Associations"	3500
Circular	4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	3500
Circular	28	J. H. Linford,	"Correspondence Study Courses"	4500
Circular	4	Gertrude McCheyne, Hortense White ,	"Program Leaflet of Home Economics Associations"	3500
Circular	4	Gertrude McCheyne, Hortense White ,	"Program Leaflet of Home Economics Associations"	6500
Circular	4	F. R. Arnold,	"Play Service"	500
Circular	4	Gertrude McCheyne, Hortense White ,	"Program Leaflet of Home Economics Associations"	3500
Circular	28	Emil Hansen,	"The Beautifying of Home Grounds"	2000
Circular	4	Gertrude McCheyne, Hortense White ,	"Home Economics Association Leaflet"	6500
Circular	4	Gertrude McCheyne, Hortense White ,	"Program Leaflet of Home Economics Associations"	5500
Circular	8		Richfield Round-up Program	500
Circular	16		Logan Round-up Program	3500
Circular	4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500
Circular	8		"Program Cedar City Round-up"	2500
Circular	4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500
Circular	8	J. C. Hogenson,	"Potato Project"	1500
Circular	4	J. C. Hogenson,	"Sugar Beet Project"	1500
Circular	4	J. C. Hogenson,	"Bean Project"	1500
Circular	4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500

No. Pages	Author	Title	Copies Printed
Circular 16	J. C. Hogenson, M. C. Merrill, E. W. Stephens, Goldie Faux,	"Vegetable Garden Guide"	7000
Circular 4	E. W. Stephens, J. C. Hogenson,	"Sow and Litter Project"	1000
Circular 12	Ben R. Eldredge, J. C. Hogenson, E. W. Stephens,	"Cow Testing and Feeding Project"	1500
Circular 4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500
Circular 8	J. C. Hogenson,	"Pig Management"	1000
Circular 8	Jean Cox,	"Flour and War Breads"	5000
Circular 4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500
Circular 4	J. C. Hogenson, Henry Oberhansly,	"Care of Young Pigs After Weaning"	1500
Circular 4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500
Circular 4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500
Circular 4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500
Circular 16	J. C. Hogenson,	"Boys' and Girls' Club Encampment"	2000
Circular 40	State and Assistant State Leaders,	"Manual for Boys' and Girls' Club Work in Utah"	2000
Circular 8	J. C. Hogenson, George Stewart,	"Improved Seed Project"	2000
Circular 8	J. C. Hogenson,	"A Suggestive Study, Reading, and Demonstration Course in Agriculture"	2000
Circular 8	J. C. Hogenson,	"Sanitary Drying of Fruits and Vegetables"	2000
Circular 16	J. C. Hogenson,	"Conservation Pointers"	2000
Circular 4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500
Circular 8	H. W. Sanborn,	"Proper Breeding and Feeding"	5000
Circular 4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500
Circular 4	Gertrude McCheyne, Hortense White,	"Program Leaflet of Home Economics Associations"	5500

FARM BUREAU AND COUNTY AGENT WORK

To the Director of the Extension Division:

Sir: I have the honor to submit herewith a report of County Agent work in Utah for the past biennium.

The past two years have been in many ways the most important in the history of Utah's agricultural development. Never before have farmers been so wide awake, and so unselfishly united and devoted to the welfare of their county, state, and nation, as well as to their own business. Their record will go down in history as one of almost superhuman accomplishment.

ORGANIZATION

The County Farm Bureau as at present constituted is a membership organization of farmers and others interested in agricultural development in the county. General policies and a program of work are determined by a board of directors consisting of the presidents of the local bureaus in the county. These policies and program of work are executed by an executive committee, and project committees, with the aid of the county agricultural agent. The Extension specialists render assistance to the county agent and project committeemen. Each local organization has a project committeeman to work in coöperation with the county committeemen.

These county organizations are federated into a state organization to handle certain necessary state projects which cannot be taken care of by the counties. Each County Farm Bureau is represented in the State organization by one member.

On December 1st, 1916, there were six county farm bureaus, with nine regular county agents. At the present time there are fifteen regularly organized county farm bureaus, with fourteen county agents and thirteen emergency county organizations with eleven agents.

All of these organizations which at present are under emergency appropriations are anxious to make the work permanent.

On December 1st, 1917, the County Agent Leader and one Assistant Leader had general supervision of county agent work. During December an emergency assistant state leader, and one district supervisor were appointed. The district supervisor was made an assistant state leader July 1st, 1918.

SUPERVISION

The County Agent Leader has acted also as Assistant Director. This has taken considerable time in handling general administrative matters during the absence of the Director. The field work of the specialists has also been directed from this office. Assignments for specialists have been made to the various counties as calls came in or as the county program of work indicated such help would be timely. A large record sheet is kept indicating the assignments of all specialists for the month by weeks. At a glance we can locate any of these men or will know of their itinerary from one week to one month in advance.

The work of supervision has been divided as follows: One assistant State Leader in charge of County Agent reports and projects; one assistant in charge of office methods and efficiency both in the State Leader's office and in those of the agents. The State Leader has been in charge of all organization work. The extreme distances necessary to travel and slow methods of transportation have made it necessary to over-lap and assist each other in these various lines of work.

Six southern counties have been made a district which is supervised chiefly by one of the assistant county agent leaders. The remaining counties are covered by the county agent leader, and the other two assistants. Regular visits are made to each county, and assistance given whenever possible. On each visit the supervisor aims to spend some time in the office with the agent, and some time in the field checking upon the demonstration, and seeing if proper record is being kept, during the progress of the season, of the demonstration work.

Every county in the State is now served with a County Agent, and a Farm Bureau organization has been effected in every county with the exception of one. When an agent is assigned to a county he is accompanied by one of the supervisors and introduced to the county. During the past year organizataion has been effected before the county agent arrived in the county or at the time of his going in. Assistance was given in organizing and choosing the program of work and selecting the projects for the year's work. By this method the agent has some definite work from the day he lands in the county.

MEETINGS

The Farm Bureau directors meet monthly in the majority of counties except during the busy harvest season when they are called together as needed. Several of the counties hold regular monthly meetings of the executive committee and call in directors only in cases of necessity.

In all counties project committeemen meet on call of the executive committee. Some changes will be made in regard to these meetings during the coming year.

The County Agent, Home Demonstrator, and Club agents, meet on the last day of each month at the Farm Bureau office. Here they report the work done during the month and plan their work for the succeeding month to insure continuity of work and efficiency of time. This was found necessary one year ago and it will fit in well with Farm Bureau work under the enlarged plan which includes the work of all adults and boys and girls.

Project meetings are held to launch the project drives, to study in the field the development and final results of demonstrations, and to present the results throughout the county. Miscellaneous meetings are held as necessary.

CONVENTIONS

In order to keep up the interest of the agents in the work, and to have uniformity, and give the agents a chance to meet each other and the State and National leaders, it is necessary to have conventions during the year. Three such conventions were held in 1918, during the months of June, October, and January.

The first of these was held at Logan, the week of January 22nd to February 2nd, where all the agents and specialists were in attendance. We were favored at this meeting with the presence of Mr. H. B. Fuller of the Washington office. Very much benefit was derived from his assistance. Organization was one of the main topics discussed, as well as how to carry on the project work. Plans were also laid for successfully carrying on the war emergency work, especially in relation to increasing the food supply of the world.

Next, District Conventions were held. The agents from Box Elder, Cache, Weber, Davis, Salt Lake, and Utah Counties met in Ogden, June 17, 18, 19. The agents from Rich, Morgan-Summit, Wasatch, Uintah, Duchesne, Carbon, Grand and San Juan met at Heber City, June 20, 21, 22. The agents from Emery, San Pete, Sevier, Wayne, Piute, Garfield, and Kane Counties met at Richfield, June 24, 25, 26. The agents from Washington, Iron, Beaver, Millard, Juab, and Tooele counties met at Beaver June 27, 28, 29. In these conventions the agents in attendance all had similar problems, and those specialists who could be of particular assistance were in attendance.

All of the agents and specialists were again called to a convention for three days at Salt Lake City, October 2, 3, 4, 1917. General plans for the annual fall and winter drives were discussed at this convention. One session was also held in connection with the State Crop Pest Commissioners and Inspectors, and a general coöperative plan of work was agreed upon.

REPORT OF STATISTICAL METHODS

At the County Extension staff meeting each agent makes out a monthly report of work done during the month. Statistical cards (4x6 inches) are supplied upon which are printed the outline for data necessary to make complete monthly and annual reports. Each agent also makes out a progress monthly report by projects. He arranges the projects in order on a card tacked on the desk. In this way the projects appear in the same order each month. Definite data and description of methods are especially emphasized in these reports.

Each agent monthly submits a narrative report on the progress of the work on every project and also the miscellaneous activities of the agent. A summary of both these statistical and narrative reports is made up at the Logan office, and a copy sent to Washington and to each agent. In this way each agent keeps in touch with the work of every other agent. The supervisors give especial attention to those counties where the reports indicate that assistance is needed.

At the same meeting a monthly itinerary is outlined on a 4x6 card, indicating the place and nature of work to be done each day. From these itineraries, which reach our office about the second of the month, the specialists are assigned. Each agent is requested to ask for specialists needed.

Follow-up cards of various kinds are kept upon which a complete record of demonstration plats, and other work is kept. Every agent is impressed with the necessity of definite tangible figures based on demonstrations in sufficient quantities to use as a measure of the year's results.

Committeemen are urged to keep in touch with the demonstration plats and other project work in their respective lines and to assist in measuring, weighing and tabulating results. This is highly important for best results. When a project is complete the agent writes it up, with the help of this project committeeman, in such form that it can be incorporated into the annual report at the end of the year.

The annual report consists of these project reports and miscellaneous work written up in narrative form. The narrative report is based on the statistical report but outlines in detail the method used in getting the results and gives proper interpretation of results.

COUNTY PROGRAM OF WORK

Every Farm Bureau in the State adopts a permanent program of agricultural improvement. At the beginning of each year an annual program is chosen in keeping with the permanent program. It is evident that not all improvements can be made or even worked on in any one year without dissipation of energy. For this reason the force of the organization is centered on an annual program which includes the problems in more immediate need of solution. This program incorporates a limited number of major projects of county-wide (or nearly so) importance, a number of minor projects, and certain timely emergency and miscellaneous work. During the past year a very considerable part of the time has been devoted to the execution of plans worked out by the National Administration on increased food production and conservation.

The following table gives an idea of the activities of the agents in extending the work in the counties: 1917-1918.

Different farmers visited on their farms	11,126
Total number of farm visits made	21,391
Calls on agent at office relating to county agent work	14,562
Meetings held under auspices of county organization or agent	2,560
Total of all meetings in which agent took part	7,578
Total attendance at such meetings	105,954
Membership in County Farm Bureau (Dec. 1, 1918)	6,368
Boys' and Girls' Clubs organized in 1918	49
Total membership in such clubs organized in 1918	1,248
Agricultural articles written by agents published in local papers	3,027
Agricultural articles written by agents for County Farm Bureau News or other official publications of Farm Bureaus	1,356
Letters mailed (include original copies of circular letters)	34,230
Total circulation of all such circulars and circular letters	26,238
Local extension schools, including farmers' institutes, in his county at which agent assisted	74
Total enrollment at these local extension schools	31,900
Agricultural observation parties conducted (automobile trips, etc.)	62
Total number of persons in all such parties	2,570

Through the efforts of the agents and the organizations through which they have worked the following net saving to the farmers of the State, have been achieved during the past two years:

On Crop Demonstrations	$180,404.37
Sparrow Control	120,117.00
Rodent Control	702,368.00
Insect Control	305,295.00
Plant Disease Control	73,801.00
Irrigation Project	99,975.00
Increased production from drained lands	1,013,934.00
Live Stock Disease Control	100,925.00
Predatory Animal Control	96,100.00
Coöperative Buying and Selling	37,625.00
Reduction Threshing Charges	94,490.00
Readjustment of Crop Prices	3,742,910.00
Total	$6,567,944.37

These results are all definitely measured and carefully estimated on work which can be accurately determined.

In addition the following emergency work has been done by way of increasing production.

Increase in Production Spring Wheat	494,343	bu.
Increase in Production Winter Wheat	137,250	bu.
Increase in Production Oats	94,435	bu.
Increase in Production Sugar Beets	339,307	tons
Increase in Production Corn	22,134	bu.
Increase in Production Potatoes	247,300	bu.

Increased number of livestock on farms:

Cattle	4,591
Hogs	20,837
Sheep	17,685
Poultry	190,059

PLANT DISEASE CONTROL

During the past bi-ennium the work of controlling plant diseases has become very important, and the results of increasing value. Since December 1917, Mr. Wilson has been acting as Extension Plant Pathologist, and has done some very good work.

During the past year alone 2971 farmers in the State treated various seeds for disease under the general direction of the agents and the Plant Pathologist. During the bi-ennium 288 farmers have grown 3628 acres of crops as demonstrations at which a total of 95 demonstration meetings have been held with an attendance of 2202 farmers. In addition 14,080 farmers treated seeds for disease under general advice of agents and specialists.

RODENT CONTROL

Enormous losses have been sustained annually in Utah from rodents of various kinds. Ground squirrels and rats have especially been on the increase in recent years. Jack rabbits, ground dogs, pocket gophers, and others have done considerable damage.

The work during 1918 has been directed against all these pests but especially against the ground squirrel. Poisoned oats were used almost universally except for rabbits and pocket gophers. Alfalfa leaves were used for rabbits and carrots for gophers.

The county commissioners and State Live Stock Board furnished the strychnine free to the Bureaus. Farmers stood the other expenses. Most of the strychnine was purchased through the Extension Division. The Division ordered the State's needs through the Biological Survey. That office ordered for all the States. These enormous orders reduced the expense of distribution to a minimum, thus effecting a great saving to the farmers.

In determining savings a uniform system was adopted. One squirrel destroyed the equivalent of at least one bushel of grain per year in the farming areas. On the range at least one-fourth this amount.

Similar methods were used for the other rodents concerned. Mr. B. B. Richards, Specialist in Rodent Control, has given fine service in working with the county agents mixing poison bait, in giving demonstrations, and in determining results and savings effected.

There have been used 100,861 pounds of poisoned baits by 1703 cooperating farmers. This was applied on 86,104 acres of infested land. The farmers reported 892,179 rodents destroyed with an estimated saving of $702,368.00. Unquestionably crops amounting to this value would have been taken by these rodents. All figures used in calculating the amount of damage done by these animals were given by specialist of the U. S. Bureau of Biological Survey.

We have incomplete returns of a brief survey made on estimated area of range and farm lands infested with various kinds of rodents in sufficient numbers to do material damage. There were thirteen counties reporting the following results: Acres of land infested by ground squirrels 73,000; prairie dogs, 3,020,640; rabbits 6,000; and all others including rats, pocket gophers, mice, etc., 16,000; a total of 6,127,840 acres. Some of the counties did not classify the kind of rodent, thus accounting for the totals not agreeing. There were seven of these counties estimating an annual loss of $1,285,000. At this same rate the total annual loss in the thirteen counties would amount to $4,085,220.

All county agents reporting, urge the necessity of continuing the campaign but on an enlarged scale. We recommend strongly that the Bureau of Biological Survey cooperate with the state and county governments in furnishing the strychnine free to all Farm Bureau committees. The Forest Service should cooperate similarly on the Forest Reserves. It should be remembered that a large proportion of these infested areas are included in the Forest Reserves and in the public domains of the United States Government.

Respectfully submitted,

R. J. EVANS,
County Agent Leader.

REPORT OF THE JUNIOR EXTENSION DEPARTMENT

To the Director of the Extension Division:

Sir:

I have the honor to submit herewith a report of the Junior Extension, or Boys' and Girls' Club Department for the last biennium.

Organization of the Department.—Boys' and Girls' Club work is a Department of the Extension Division of the Utah Agricultural College and the United States Department of Agriculture. At the beginning of the biennium, the staff consisted of three State workers and eight county and district leaders. The State workers were:

J. C. Hogenson, State Leader.

E. W. Stephens, Assistant State Leader.

Claire Parrish Dorius, Assistant State Leader.

Later Mrs. Dorius resigned and was succeeded by Miss Blanche Cooper. After a few months' work Miss Cooper went into other lines of work.

State Staff.—The present state staff consists of the following:

J. C. Hogenson, State Leader, who has general supervision over all the work of the department and specific direction of the crop projects.

Miss Goldie Faux, Assistant State Leader, is a graduate of the Utah Agricultural College, with several years experience in teaching in the High Schools of the State. Miss Faux has charge of the Domestic Science projects and assists in organization and relationship work.

Henry Oberhansly, Assistant State Leader, is a graduate of the Brigham Young University at Provo, in Animal Husbandry work, and a practical livestock man with several years experience as a High School teacher and principal. Mr. Oberhansley has charge of the livestock projects and assists in organization and relationship work.

Miss Bessie Eaton, Assistant State Leader, is a graduate of the University of Nebraska, with experience as a leader in Nebraska and as a teacher in the High Schools of Utah. Miss Eaton has charge of the Domestic Art projects and assists in organization and relationship work.

These persons are employed cooperatively by the Agricultural College and the U. S. Department of Agriculture, and spend all of their time visiting and giving instructions, advice, and encouragement to the county and local club leaders and individual members, in giving demonstrations, making out plans, distributing literature, and in otherwise promoting the work among boys and girls in the State.

County Leaders—Besides these State workers we have county and district leaders in nineteen of the counties of the State. There are thirty-six of these leaders who spend part of their time in promoting club work in their part of the State, and seven who spend all of their time in the development of club work.

Relationship.—During the last biennium we have worked in close cooperation with the public and high schools of the State, the project being in most cases part of the school work. It has been decided by the United States Department of Agriculture and the Utah Agricultural College that Club Work will be more thoroughly tied up as a regular part of Farm Bureau work, than

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has been possible in the past owing to the lack of funds. This means that in the future Club Work will be carried on as a part of the Farm Bureau program of work in the county. The Farm Bureau will conduct club work in cooperation with the schools if it is found desirable.

Purpose of The Work.—The purpose of the work is to awaken the interest of boys and girls in farm and house activities, to induce them to assist the community and the nation by the production and conservation of farm, field, and home products, to train the hands and the minds by productive, supervised employment. It places emphasis on the best in agriculture and home-making and thus helps materially to improve these enterprises in the various communities where properly conducted.

Club Work is useful because it teaches the boys and girls to do, and to learn the "Whys," "Hows," and "Whens," as well as to improve their practices and increase their remuneration. Club work stands for efficiency and order, and is the best possible organization for systematic work in agriculture and home economics with boys and girls.

Club Work is essential also for the following reasons:

1. Production is increased and the best principles and practices demonstrated.
2. Conservation and thrift are encouraged and the best methods outlined.
3. Education in its broadest sense is promoted, in that boys and girls put into practice on the farm and in the home the things which they have learned in school and elsewhere.
4 Demonstrations are conducted which show the latest and best methods and practices.
5. Sociability and responsibility are taught through team work.
6. The Great American home is recognized as the basis for work with boys and girls.
7. The problems that confront the community are learned so that the boys and girls, by working with their club projects, help to solve them.

Method.—The method followed is to conduct demonstrations with boys and girls in farm and home activities, including club projects with field crops and farm animals; to direct and teach boys and girls how to manage, grow, prepare and market crops and animals, and how best to save the surplus food products by home canning and drying and preparing the same for the table use and markets; also to furnish them with the local leadership and field instruction essential to success in the work.

Aim.—The aim of the department is to put full time club leaders into every county of the state as fast as funds will permit, and to reach every boy and girl in the state who is in need of our help.

Projects.—During the biennium, fifteen definitely outlined projects were taken up by the boys and girls of the state. These may be divided into four classes, as follows:

1. **Clothing**
    - (a) Personal.
    - (b) Renovation.
    - (c) Millinery.
    - (d) Red Cross.
2. **Foods**
    - (a) Baking.
    - (b) Preservation of Perishable Foods. Canning, drying, salting, storing.
3. **Production**
    - (a) Crops: Corn, sugar beets or mangels, potatoes, beans. Garden.
    - (b) Livestock: Hogs, sheep, calf, rabbit. Poultry.
4. **Miscellaneous**
    - (a) Weed and crop pest eradication.
    - (b) Handicraft.

The following is a summary report of the returns from the work:

Total number of members reporting during last two years	49,411
Total value of products	$1,924,796.10
Total cost of supervision and production	697,732.35
Total profits to club members and to the state	1,127,063.75
Average products raised per club member	37.75
Average cost per club member	14.12
Average profit per club member	22.81

Meetings.—Three thousand six hundred and fifty-five meetings were held by the state and county workers with a total attendance of 85,888 persons. During this same time 990 demonstration meetings of various kinds were conducted with an attendance of 21,630 persons.

The state and county workers, during the same time, have made 21,160 personal visits to club members.

The Club Leaders' Conventions.—We have held a Club Leaders' Convention each year during the biennium, in 1917 at Provo, and in 1918 in Salt Lake City. They were successful in every sense of the word. Problems pertaining to the reorganization of the county farm bureaus of the state on the family type basis, the relationship between the club work and the Smith-Hughes work as well as many others were discussed in detail.

State Fair Encampments—We have held two Club Encampments at the State Fair in Salt Lake City. Each county or district was allowed to send only its winning boy and winning girl. The State Fair Association contributed $600 to conduct the encampment and pay for the incidentals connected with the exhibits.

Fair Exhibits.—This department conducted forty-seven local and county exhibits and fairs during the biennium, with a total attendance of 16,979 persons. Only those boys and girls who won at a local, district, or county fair were allowed to exhibit at the State Fair. This elimination gave us only first class material. Each county or district was limited in the amount to be exhibited so that we knew in advance what and how much material we would have for exhibition.

Demonstrations at the State Fair.—During the State Fair week demonstrations were held by teams of club boys and girls. The following are some of the demonstrations conducted:

1. The making of syrup from sugar beets raised in gardens as a sugar substitute.
2. The cooking and canning of rabbit.
3. The cooking and canning of poultry.
4. The canning of fruits and vegetables.
5. The making of wheat substitute breads.
6. Livestock and grain judging.

UTAH CLUB PEOPLE AT THE INTER-STATE FAIR AT SPOKANE, WASHINGTON

Through the courtesy of the E. Z. Seal Jar Company of Wheeling, West Virginia, we were able to send a team of three girls to the Inter-State Fair at Spokane, Washington, last September. These girls were selected from the Jordan District because of the length of time they had been engaged in club work and also for the excellent work done. They were accompanied by their district club leader, Mrs. Christine Clayton, and by state workers, Goldie Faux, and Bessie Eaton. They all report a very profitable and enjoyable time. The Utah team, in competition with teams from Washington, Oregon, Montana, and Nevada, won first place in baking and honorable mention in canning work.

Smith-Hughes Agreement.—Recently the following agreement was reached with the Smith-Hughes forces of the state, relative to those counties and districts in the state that are not large enough to employ full-time people in both lines of work.

"The State Board of Education, through its Division for vocational education, purposes to establish in the junior and senior high schools of the state, vocational courses and classes in agriculture and home economics. An integral part of these courses and classes shall be supervised farm and home practice work.

"These classes in length may be either a part or the whole of the winter session of the schools.

"These classes make necessary the employment of teachers for this vocational work for twelve months.

"The Agricultural College of Utah through its Extension Division, will promote Club Work throughout the State, functioning through the Farm Bureaus, schools, and other agencies. This Club Work consists of definite projects in the home and on the farm.

"It is understood that teachers in the schools employed in the above mentioned vocational courses, may be hired for part of their time, and that this part of their salary be paid jointly by Federal, State, or local school funds. These same teachers may be hired for a part of their time for the Club Work, and may be paid by Federal, State, or local funds.

"All persons carrying on this work will be selected with the joint approval of the superintendent of schools and the agencies contributing to the salaries.

"Where the time of the boys and girls enrolled in the above mentioned vocational courses in the schools will permit, they may be enrolled in a separate project such as may be promoted by the Extension Division of the Agricultural College of Utah. Also there will be a group of boys and girls who are not enrolled in these vocational courses who may choose to enroll in Club Work."

Respectfully submitted,
J. C.HOGENSON,
State Club Leader.

REPORT OF HOME DEMONSTRATION WORK

To the Director of the Extension Division:

Sir: I have the honor to submit to you the report of the work in my department for the past biennium.

The past two years have seen a wonderful development in Extension work for women not alone from the administrative end at the College, but in the awakening of the women of the State to the necessity for improved methods of living, especially as related to the welfare of their children. The call of the War Emergency was all that was needed to show that Utah women have not forgotten the lessons of thrift learned in pioneer days.

The women's department of the Extension Division includes both state-wide and county work. During the first part of the period the State Leader handled both divisions alone, securing such help as was possible from the Home Economics Department of the College, graduates of the U. A. C. and physicians. The County work was handled by two women, working in districts which were chosen as representative of two phases of country life; Millard County, an outlying district with a scattered population, Box Elder, an interior county with considerable railroad facilities.

Utah was honored by being the place selected for the first regional interstate conference. This was called by the State Relations Service, Washington, D. C., May, 1917, and was held at the Utah Agricultural College. Miss Florence E. Ward, in charge of Women's work in Extension for the Government, presided. Naturally, the foremost topic was war food emergency. It was at this meeting that we first heard of an Emergency Appropriation Bill, to be used to increase the force of County Agricultural and Home Agents. It was expected that this would be passed immediately. Owing to the delay, temporary help was secured to handle the demand for instruction in the canning of fruits and vegetables. Seven women were appointed for July and August, the salaries and expenses of two being financed through the generosity of the Relief Society.

August, 1917, Congress passed the Emergency Appropriation. Women had already been selected for the positions and by September 1st, the field force was augmented from two to nine. They were placed as follows:

Emergency County Home Agents—Full time—4. Sevier, San Pete, Utah, Weber.
Emergency County Home Agents—Part time—1. Iron.
Emergency District Home Agent—Full Time—1. Davis and Salt Lake.
Urban Home Agents—Full time—1. Salt Lake City.
County Home Agents—Full time—2. Millard and Box Elder.

It was soon found that the women of Salt Lake and Davis Counties were responding so heartily that it was impossible for one Home Agent to take care of the insistent demands. By the first of April the field staff was again augmented by placing a woman in each of these counties and one in Uintah and Wayne, making a total force of eleven field workers.

PROJECTS

In order to accomplish anything definite, the work from the first was put upon a systematic basis. The chief aim of the two agents first placed in the field was to become acquainted with conditions and teach the women what the presence of a permanent worker in their midst might mean to them. To gain an entrance into indifferent or antagonistic homes was a problem and to keep the work from becoming, from the standpoint of the housewife, merely the chance to secure the services of a cook free of charge. In Millard County, the need seemed to be for increased use of vegetables and milk in the diet and improvement in sanitary conditions. Vegetables were not grown, so a garden project was started in which 33 women in five towns took part. The preparation of these vegetables for the table and finally the canning of the product was the next step. An entirely new idea was the bottling of meat as up to this time nothing but cured pork had been known. These first efforts were as a little leaven which leaventh the whole lump, and now every family is proud to show its shelves of canned vegetables and meats, the latter including beef, mutton, chicken and pork. On some farms the demonstrator supervises the bottling of a whole hog or beef.

The sanitation question was a delicate one which the demonstrator tactfully put into the hands of some of the local women. In one town alone 37 new outhouses were built that season, and in each of the homes the screens were renewed or renovated. This work was another step forward since it brought the cooperation of the men.

Box Elder also welcomed instruction in better feeding of children. Owing to the demonstrator having been offered another position, the project was not completed. It is a rule that the work once begun in a County is continued, and it was not long before another woman was found for the vacant position.

These pioneers in Home Agent work were establishing its value and other counties were asking why they could not have similar help. Utah County sent in a petition signed by 200 women asking for the services of a demonstrator for the summer months to help the mothers in the care of infants and children. An expert in dietetics was secured. A series of lessons in Child Nutrition was given. Diets to suit special cases were indicated. Demonstrations on food preparation were given and a large amount of miscellaneous work was handled. The women were enthusiastic in their praise of the help given.

During the year 1917-18, the projects naturally followed the program of the Food Administration. Production, conservation, and preservation of food and clothing were generally chosen. Some forms of sanitation, home improvement and home finance were taken up individually.

Methods and Results—Production

(a) Poultry—The raising of the larger kinds of livestock had obscured the value to be derived from a right amount of attention to poultry. Five counties chose this as a project. Specialists from the Department of Agriculture and the College gave instruction in feeding and housing and care of poultry. This was followed up by distribution of printed instructions. Reports show that 373,110 poultry were raised, showing an immense increase over other years.

(b) Egg Preservation—This was handled as a part of the project. Window exhibits, posters, and demonstrations were an effective means of awakening the women to the monetary value of this activity. In most cases, the field work was done in cooperation with the boys' and girls' clubs. 17,196 dozen eggs were put down. When it is considered that the preservation of eggs was practised to a very small extent in previous years, such a showing from five counties speaks well for the work.

(c) Gardens—Nearly everyone has had some sort of a vegetable garden, but the aim was to secure larger gardens, more uniform planting and a greater variety of product. The head of the horticultural work of the U. A. C. gave instructions. In some counties, model gardens which were visited by the women proved helpful in stimulating interest. The report from the project shows 5,337 well kept gardens as a result.

Conservation—Substitutes—Food Values

In order that the changes of the National Food Program might be known as soon as possible, the Home Agents were put into direct touch with the office of the State Food Administrator.

Formulas for bread made from substitutes that could be obtained in Utah were tested by the Home Economics Department and furnished to the field demonstrator.

The Vigilance League was organized by the publicity department of the Administration. Membership cards were distributed by the signing of which a woman became pledged to watch for violations of the food law. Cards were provided upon which complaints and suggestions were tabulated. These afforded a means whereby those unable to procure or use the substitutes could be reached.

The sugar situation became very serious in August. Special instructions on saving sugar campaigns were sent to agents. Exhibits and demonstrations of fruit candies, jellies made with sugar substitutes and lectures on the place of sugar in the diet were given.

Preservation of Food.—This project received its greatest stimulus in the season of 1917. The temporary workers had given instructions in canning in every town in their counties. To decrease labor and time, the Council of Defense and the Agricultural College coöperating secured 350 steam pressure canners at reduced rates. The Consolidated Wagon and Machine Company agreed to be the distributing center. Circular letters to the women's organizations, setting forth the advantages in using the cooker, were distributed. Centers were established where community canning was done on a small scale on certain days each week. Hundreds of quarts were put up under the supervision of the demonstrators. The amounts put up by the women in their homes may be judged by the fact that nearly every family when the canning season of 1918 opened had from fifty to three hundred quarts of material left over. The fact that this material was in good shape speaks well for the instructions given by the demonstrator.

There was at that time no agent provided for Salt Lake City. The work there was organized through an executive committee and a general committee consisting of a representative from each organization of the city. The work was financed by the City Commission, the City Council of Defense and the Agricultural College of Utah. A supervisor was put in charge of the work with four assistant demonstrators. Community Centers were established in seven school districts. It is estimated that there was an attendance at demonstrations and lectures of 2,818; that 1,809 were reached through personal conversation and telephone calls, and that indirectly 5000 were reached through window exhibits and the message carried home by those attending the demonstrations. 8,200 bulletins were distributed.

Provo established a Community Center in the Relief Society Hall. In the basement, three of the large steam canners were installed, and in a large upstairs room the drying of vegetables and fruits was carried on. Supervisors working under the home Demonstrator took turns in giving instructions to those who came to put up their vegetables. Hundreds of quarts were dried and canned successfully. Many individuals in Provo also had purchased canners. Groups of women gathered in these homes and received instructions from the demonstrator in correct methods.

In Ogden, centers were established in the High School kitchen and in Weber Academy. Three days a week regular demonstrations were given. A Center was also opened in the basement of the Presbyterian Church. These Centers were also devised by the Home Demonstrator.

Owing to the intensive campaign conducted at this time, the requests for assistance in this project the past year have not been so numerous. Schools in home preservation were conducted by the Home Agents in some of the counties. The women attending these schools carried the instructions to their neighbors. The reports received show the following amounts:

Canned fruits	1,465,820	quarts
Fruit products	32,908	quarts
Dried fruits	31,130	pounds
Canned vegetables	89,347	quarts
Brined vegetables	33,383	quarts
Dried vegetables	3,636,107	pounds
Canned meats	5,299	pounds
Canned fish	32	pounds

This last project was carried out mainly in Utah County. An effort was made to interest the people in using the fish in Utah Lake. It is hoped that this will obtain a greater development in the future.

Food Wastes.—This project was handled in Ogden and Provo. In Ogden, a survey of the apartment houses was made and a report gotten out. In Provo, the Relief Society made a block canvass. After the work was completed, each block agent gave her report to the Ward Chairman, in turn they met with the general supervisor and made their reports, the summary of which was as follows:

Total families visited	2,339
Those who have animals to consume their food waste	2,000
Number who burned or wasted their food scraps	339

Arrangements were made whereby all garbage containing food values was properly utilized.

On this conservation project, two mass meetings, 45 project meetings, and 7 chairmen's meetings were addressed by the State Leader.

Campaigns.—Use of milk and its by-products.—A campaign for the use of skim milk was conducted in coöperation with the U. S. Dairy Division and the Extension Division. An itinerary was mapped out to cover all the counties having a Home Agent. The work was performed in a most satisfactory manner by a woman who had received a course of training under the United States Dairy Division at Washington. Owing to the State having so many creameries, results in actual figures did not always show up. However, the frequent mention afterwards made of the cottage cheese demonstrations and lectures showed that the work bore fruit.

Use of Surplus Potatoes.—This was for the purpose of using up the overflow yield of potatoes. It was handled by means of demonstrations in the use of potatoes as a substitute for bread at meals and also as a part of the bread as a substitute for flour, and also as affording an entire substitute for flour in the form of potato starch. An interesting project was conducted in San Pete County in the town of Ephraim. The Home Demonstrators secured the coöperation of the owner of an automobile. He used the power for grinding the potatoes. 3800 pounds of starch were made in this town alone. Pictures of all the steps in this project were taken and are now in the possession of the States Relations Service, Washington, D. C., where they will be made into slides and used in lecture work throughout the country. Demonstrations in the use of the potato starch for the making of breads, cakes, thickening gravies and stews were given.

Sugar Saving.—The use of sugar substitutes such as honey and molasses was demonstrated. Exhibits of dried fruit candies to take the place of commercial candy proved very popular with the young people. The greatest difficulty was to secure the coöperation of the women in putting up fruit without sugar. This latter part of the project was largely carried out through the coöperation of the merchants who were glad to distribute formulas and to put the women in touch with their County Home Demonstrator.

Clothing.—Remodeling and renovating for the purpose of saving wool and to induce a more conservative expenditure of money and time on the wardrobe met at first with scant response. The women said they had always made things over. The suggestion that only an expert could give the touch that would remove the mark of the left-over caught the attention, and the Home Agents had no further difficulty. The financial saving was another side that appealed. In Cache County, a conservative estimate showed that nearly five thousand dollars in cash had actually been saved by the women. The greater part of this was used to buy war thrift stamps and liberty bonds. The Home agent is an expert in Domestic Art. She conducts schools in which she instructs her women with the understanding that they will pass on the instruction to others. Four Counties made a specialty of this project. Uintah County was especially benefited therefrom as the great distance the materials have to travel from the trade centers makes the prices very high. The making over of children's clothing has been especially handled. A conservative estimate of the cash saved in four counties is $10,919.00. The estimate of the habits of thrift in clothing can never be given. It will show in the increased sanity of the succeeding generations in the purchase of their wardrobes.

Minor Projects—Cheddar Cheese.—In coöperation with the office of the U. S. Dairy Department, Salt Lake City, an expert in cheddar cheese was sent to two counties where the women desired to improve their product.

Marketing.—An interesting experiment was made in inter-county marketing. Iron County has but little fruit while Washington has a surplus. Two days a week, a truckload of graded fruit was brought from Hurricane to Cedar City. The women obtained the fruit in better condition and at lower prices than when they bought from peddlers at the door.

Equipment.—Steam pressure cookers have been introduced for cooking purposes. It has been thought that these were only of value for use in canning. Over 500 are now used in homes. Other results from this project are:

Water systems installed	38
Houses screened	562
Kitchen and other rooms remodeled	34
Pieces of improved household equipment adopted	260

URBAN

For the first time in work done in coöperation with the Department of Agriculture cities have been included, and urban home agents have been appointed. Cities of over 45,000 in population were allowed a demonstrator. At the close of the season of 1917, a demonstrator was installed in Salt Lake City. She conducted her work mainly through the school districts, giving lectures and demonstrations in nutrition and in the preparation of food. It was decided by the conservation committee of the city that better results would be achieved by the establishment of a Community Center. This was opened on Regent Street. The City Council equipped a demonstration and lecture room. The personnel of the Home Agent was changed in order to meet the demand of the women for a more matured worker. The former Home Agent was placed in a county and her place taken by a nutrition expert.

The projects handled were nutrition, dietetics for nurses, food conservation, including wheat and sugar substitutes, canning and drying, jelly making. This work was done almost entirely at the Community Center. The audiences varied from 30 to 200 according to the popularity of the subject of the demonstrator. It is felt that the future development of urban work will show the necessity of reaching out to the districts of the city as well as centralizing the work in one place. The need for additional help was early apparent and some help was secured from the L. D. S. High School, the nurses association, and the University of Utah.

STATE-WIDE WORK

A general assistant in home economics was appointed in July 1917. The assistant with the aid of specialists handled most of the institutes and schools held in the counties.

Schools and institutes have been held in every county not having a regular worker, and in some cases more than one trip a year was made to a county. The duration of the institutes have been from one to three days in a community, and that of the schools from three to ten days. During the season of 1916 and 1917 the subjects handled were nutrition; child welfare; food preservation; home finance; household equipment; and sanitation. We were fortunate to obtain the aid of a child specialist who gave lectures to large audiences upon the care of the mother and infant. Free clinics were held at each short course, at which time the specialist in cooperation with the local physicians examined the children and gave advice.

The advent of Miss Alice Ravenhill, one of the foremost sanitarians of the age, has been of inestimable benefit to the mothers of this State. Her advice on the care of the child and home improvement has been eagerly sought. She has published bulletins, one on child care, and one on household devices, both of which have had a wide distribution throughout the state.

HOUSEKEEPERS' CONFERENCES

Four of these were held during the season of 1917, at Ogden, Salina, Cedar City and Logan. Miss Rovenhill and Dr. Olsen, the child specialist, were the principal speakers.

The subject of the short courses during the season of 1917 to 1918, naturally followed the course of the war emergency call. Demonstrations in uses of wheat substitutes, fat saving, sugar substitutes, renovation and remodeling of clothing, home health household management were all handled by experts. Miss Ravenhill who was the head of the Department of Home Economics was again the principal speakers.

Specialists.—In addition to the above specialists in gardening and poultry, and U. S. dairy expert in cottage cheese gave assistance at the short courses. In fact, much of the success of the work along these lines in both the counties, and state-wide activities is due to the cooperation of specialists. Those who have assisted us are:

Byron Alder, Assistant Prof. Poultry Husbandry, U. A. C.
Harry Sanborn, Poultry Specialist, U. S. D. A.
M. C. Merrill, Prof. Horticulture, U. A. C.
Ben R. Eldredge, Dairy Specialist, U. S. D. A.
Genevieve Potter, Agent in Dairying, U. S. D. A.

Follow-up Work.—During the season of 1916 to 1917, the home economics associations increased from four to seventy, with an enrollment of over 3000. These associations carried on a consecutive course of study in some one subject, and also handled civic improvement and child welfare campaigns. In three towns they established libraries and reading rooms. A leaflet known as Home Economics Leaflet was a means of keeping in touch with these associataions. It contained a lesson upon the subject that was being studied and suggestions for other activities. So successful were these organizations that they attracted the attention of the Relief Society. After consultation with the Extension Division they decided to institute a home economics day once a month as a part of the Relief Society program. The lesson for this was to be written under the supervision of the Extension Division. In many cases the associations have become incorporated into the Relief Society, still retaining, however, their former officers. Some of these still remain intact, but it is believed that their place will soon be taken by a larger organization, namely: the Farm Bureau. The Home Economics Leaflet is still published with a circulation of over 5000. The Home Demonstration agents consider it a valuable means of keeping in touch with their women and in getting before them lessons on current topics. Miss Hortense White, Assistant in Home Economics, has charge of compiling the material for this publication and deserves credit for the efficient manner in which this work has been done. Seventy organizations receive from twelve to fifty copies a month. At the beginning of the year a questionnaire was sent to each organization asking for enrollment to date, and requesting that they state whether they wish to continue receiving the Leaflet. One out of seventy wished to discontinue, while all expressed their appreciation of its helpfulness.

State Food Administration.—Through the combination of the offices of State Home Demonstration Leader, and Home Economics Director of the U. S. F. A., the work was handled without any overlapping. The field force of the Extension Division was placed at the service of the Food Administration, and was the means through which food regulations were carried out in the homes.

Activities for 1919.—It is only fitting that in closing this report a word should be said about the hopes and plans for the future. One of the foremost things needed to insure continued progress in the work is a closer cooperation between the three lines now in the field. The organization of the Farm Bureau, upon a basis whereby it shall include the men, women and boys and girls, is a means to this end.

Better means of transportation, and offices and laboratory equipment for home agents is greatly to be desired. It is believed that this will be secured by the organization of the Farm Bureau as suggested above.

An increase in the number of specialists is greatly to be desired. The business of the county home agent is becoming more and more that of an organizer, a trainer of local leaders, and a supervisor. Specialists to handle the subject matter will be a necessity if the work is to reach its full development.

A woman for research in Home Economics, connected with the Department of Home Economics, the Extension Division, and Experiment Station is as much a necessity for the women's work as the Experiment Station itself is to the work in Agriculture.

The services of the home agents in this year of war have proved of great value; we have reason to expect that in the great reconstruction period to follow, they will be even more effective.

SUMMARY OF FIELD ACTIVITES

County	
Homes visited	2,481
Demonstrations and meetings	10,752
Attendance at all meetings	61,572
Letters of information written	5,729
Number telephone and office calls	2,200
Number bulletins distributed	135,881
Urban	
Demonstrations and meetings	649
Letters giving information	3,524
Telephone and office calls	1,310
Total attendance at all meetings	16,001
Number bulletins distributed	14,995
State-wide	
Towns visited	165
Demonstrations and meetings	531
Attendance at all meetings	25,533

TOTAL NUMBER REACHED THROUGH ALL SOURCES

Attendance at all meetings	103,106
Homes visited	2,421
Telephone and office calls	3,510
Letters of information	9,253
Total	118,290

Respectfully submitted,
GERTRUDE M. McCHEYNE,
State Home Demonstration Leader for Utah.

REPORT OF IRRIGATION AND DRAINAGE WORK

To the Director of the Extension Division:

Sir:—Complying with your request of November 6, I am pleased to submit a brief outline of the activities of my Department during the past bi-ennium and outline the plans for the future.

Due to the cooperative arrangement under which the specialist in this Department operated, three-fourths of the time and expense is normally devoted to work of an investigational nature. However, coincident with the declaration of war, the general policy was changed in such a way as to make it possible to devote a large amount of time and funds to work which would be conducive to an immediate increase in food supply.

Since in Utah moisture is the chief limiting factor in crop production, much emphasis has been placed upon the increase in water supply and the work of making every available stream do its full duty. In one community, for example, at the instigation of the County Agent, two of the specialist's paid assistants were detailed to help secure the water from seven primary canals, and distribute these streams over lands planted to wheat for which no water was available. These streams were borrowed for three and one-half days and the community's wheat yield thus increased by twenty thousand bushels. Similar work, less striking perhaps, but just as important, was conducted elsewhere throughout the State.

Another community depending upon a reservoir for irrigation water had suffered from a shortage of supply eight years out of the previous ten, because the reservoir did not fill. A survey was made by a specialist which revealed the fact that a short diversion

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dam and supply channel and 200 feet of tunnel would bring in the flood waters from another large water shed. The matter was presented to the stockholders and authorized, and the specialist was given direct supervision of the work of construction, which was completed in two months. One month later the new works carried as much water into the reservoir as came from all other sources combined. Those interested are agreed that the one season's water supply has paid for the cost of construction many times over.

In addition to these activities, special attention has been given the activities:

(1) Installation of small pumping plants.
(2) Sinking of wells for irrigation.
(3) Repairing of reservoir dams.
(4) Lining of canals to prevent loss of water.
(5) Rebuilding and rearranging of canal systems to eliminate useless duplications and consequent loss of water.
(6) Installations of concrete and other forms of diversion dams.
(7) Laying out of new canals and extending of old ditches to cover new lands.
(8) Inspecting and surveying reservoir sites and directing procedure as to getting construction under way.
(9) Inspecting sources of water supply and advising as to methods of increasing same by development.
(10) Surveying pipe lines for conservation of water supply and for power development, and making recommendation as to feasibility of the projects, as well as outlining method of procedure.
(11) Directing investigations and demonstratons as to proper methods of applying water in irrigation; proper amount and size of stream to use; and proper time to apply water. Work conducted by a corps of assistants.
(12) Directing the distribution of water of one entire stream system, including seven canals. Work conducted under court order by one assistant, paid by community.
(13) Collecting data concerning the cost of litigation in irrigation water suits, with the aid of two assistants on part time only.
(14) Investigating the needs of the State as regards new irrigation legislation and assisting the State Water Rights Commission in collecting data for use in drafting

a new irrigation law ,also in amending the drainage law to meet present needs.

(15) Assisting County Agents in converting farmers to the needs of drainage, and in the organization of drainage districts.

(16) Some little assistance in laying out individual farm drains. Most of this work, however, has been diverted to the Drainage force of the Irrigation Division, U. S. D. A.

(17) Special assistance to individual farmers, and to whole communities in the matter of securing a proper seed bed, and in the importance of having an abundance of moisture available at planting time.

(18) Directing procedure in combination of two irrigation companies under one head for greater efficiency, and incorporationg the new company.

(19) Special lectures given on irrigation and drainage subjects, looking always to the immediate needs of the particular community.

In conducting this work the specialist has had the aid of eight assistants and cooperators on full or part time as follows:

Irrigation Studies.

At Sevier—One man with extra help as needed.
At Cedar City—Two men with extra help as needed.
Water measurement and distribution under court order.
  Coal Creek—one man.
Revision of Canal Systems.
  Manderfield, Beaver, Enterprise and South Davis County—one man during part of 1917.
Irrigation Institutions.
  Cost of Water Rights Litigation.
    Provo, Weber and Logan Rivers—three men on part time only.

The approximate cost of the cooperative irrigation work in Utah for the one year, July 1, 1917, to June 30, 1918, is distributed as follows:

Utah Experiment Station	$5,705.00
Irrigation Division Department of Agriculture, Water Users of the 7 Coal Creek Canals	2,000.00
Extension Division—U. A. C.	818.00

Plans for the Immediate Future Include the following Problems:

(1.) Underground Development.

At the present time considerable attention is being given the problem of underground water development. A complete set of equipment, both for sinking wells and testing the supply, is being collected and purchased. This equipment will be placed in charge of a trained assistant who will go from place to place as directed, sinking and testing wells, and educating local well drillers in up-to-date methods of digging and equipping wells for use in irrigation.

In order that this work may result in the greatest good, it will be necessary for this outfit to be kept well in repair and on the move continuously. Up to the present time no direct appropriation from either Government or State has been made for the support of this work. In reaching our present development it has been necessary to secure coöperative funds from other sources. This method of procedure is too slow to bring the results which the importance of the work warrants.

One million acres of land may easily be irrigated in Utah by use of the pump if this problem is given the support it deservess. This means not only the reclamation of desert wastes, but the releasing of much water in gravity streams now usesd on lands easily susceptible of irrigation by means of the pump.

(2) Revision of Canal Systems for Greater Efficiency.

This problem has developed satisfactorily so far as it has been worked. In this connection it is necessary to have a capable assistant who can be placed on the job at hand when the people have been made ready to act, and kept there until the work is done. It is necessary to follow the work up incessantly while the people are in the mood, if results are to be obtained. No funds are in sight at the present time for paying such an assistant.

(3) Irrigation Studies—Use of Water in Irrigation.

The coöperative work on the Greenville, Sevier, and Cedar City farms, and the studies on the Coal Creek system will be continued. Coöperative funds under present agreements are available for this work.

(4) Drainage of Irrigated Lands.

This work may be continued through coöperation with the Division of Irrigation Investigations, U .S. D. A., special work being handled by the specialist and regular assistants.

(5) Direct Aid to Farmers.

This may also be given in cooperation with, and at the request of the County Agents, those of the department fitted for the work. It is recommended, however, that this class of work be limited to cases of real merit, since much time may be wasted in trips about the State giving talks on general topics.

Respectfully submitted,
L. M. WINSOR,
Specialist in Irrigation and Drainage and Irrigation Engineer.

REPORT OF DRY FARM SPECIALIST

To the Director of the Extension Division:

Sir: Following is a report of the work of the Dry-Farm Specialist during the past biennium:

During 1917 the work was carried out under the following projects:

1. Aid to new Farmers.
2. Inventory of Available Dry-Farm Lands.
3. Seed Exchange.
4. Dry-Farm Management.
5. Study of Dry-Farm Equipment.
6. Developing Livestock on Dry-Farms.

A description of the work on each of these projects was contained in the last biennium report. Last year the work was undertaken under five general projects.

STANDARDIZATION OF CROPS

This was begun as a new project in December of 1917, the object being to ascertain the varieties of dry-farm crops in the various sections of the state giving best results and to introduce methods to eliminate the undesirable and the more unprofitable varieties. As a prerequisite to this work an inspection of hundreds of fields has been made to ascertain the varieties grown and the comparative yields of each, also their adaptability to the soil conditions and markets. From the information obtained one may safely conclude that far too many varieties of wheat, beans, corn, and potatoes are attempted by the farmers. There is great need of variety tests on each of these crops in the various sections of the state, and of a campaign being instituted to eliminate a number of the poorer varieties. It is the conviction of the specialist that a project on standardization of grains should be conducted by the county agents.

The specialist has been advocating not more than three varieties of winter wheat, two varieties of spring wheat, two varieties of beans for commercial market, and one variety of corn.

On inquiry at the canning factories and the wholesale grocers it was learned that numberless varieties of beans were grown not adapted to our home markets and therefore disappointing to the farmers. These agencies declared a great need for educational work with the farmers in growing the right varieties and in preparing the crops for market. They have proferred coöperation in this matter.

Six demonstrations are being conducted on winter wheat, It is too early as yet to report definitely on results, but when visited last, all were encouraged with the outlook.

Specific instructions have been given to eight farmers on the growing of pea beans and to seven farmers on growing of flint corn.

CULTURAL METHODS

In this project is contemplated the management of the soil for successful crops. In every trip upon the farms something is said regarding the methods to pursue to obtain the best results. Always this subject is emphasized at every opportunity. Much emphasis has been placed upon the clean fallow system and the preparation of the seed bed as vital in the elimination of weeds and inect pests, and the production of maximum crops. Plowing in season also has been strongly advocated as basic for successful crops. The handling of the soil so as to conserve moisture and fertility is explained at almost every public and private meeting with the farmers. Many letters are written weekly giving instructions on time and manner of planting crops, smoothing the land, packing the soil, rate of seeding, cultivation of hoed crops, how to combat vexatious weed problems, etc., etc.

During the year 63 addresses were given to farmers in 20 counties, with an aggregate attendance of 3353, at which some phase of cultural methods was proclaimed. Visits were made on private farms to the number of 177 and on demonstration farms to the number of 39, and on most of these occasions instructions were given on methods of handling the soil .

The entire soil operations of 115 acres on the Upland Farm, Salt Lake County, for 1918 was outlined by this office. Also the specialist personally supervised the plowing, cultivation, and planting to winter wheat, 200 acres on Ensign Flat, belonging to Salt Lake City, and produced a Foreman to conduct the work, much to the satisfaction of the City authorities. Same is now in first class condition, with the crop of wheat growing nicely and promising a good crop.

Written instructions for soil preparation and planting of ten demonstration farms have been furnished by this office.

It is safe to say that hundreds of farmers are adopting the methods advised. No checking system has been adopted, save with the demonstrators. There are 18 demonstrators, 16 of whom are succeeding the remaining two falling out voluntarily.

A demonstration farm of 640 acres in Box Elder County this year yielded an average of 25 bushels per acre as a result of cultural work planned by the specialist, as against yields of 10 to 18 bushels per acre on neighboring farms, pursuing the usual method. In dollars and cents the increase production on this farm measured about $7,000 above the average crops in the neighborhood.

ORGANIZATION OF WORK AND FARM EQUIPMENT

This project takes in the work of rendering specific suggestions and outlines of Farm Organization in order to make efficient the working forces and machinery on the farm.

It also comprehends the study of Farm Equipment as applied under various soil conditions, and the recommendation of certain types of machinery to meet the requirements of local conditions.

Many farms of the state are over-equipped as many are inadequately equipped. Recommendations are made to farmers on economic equipment and the proper organization and utilization of all the farm forces, the man power, the motive power, the machinery, etc., for the accomplishment of the work to be done, so as to eliminate as far as possible, the waste of time and energy. A program of work well planned,—a range of time for each piece of work during the year,—is advised. This will go a long way to make for efficiency and of avoiding waste, especially the waste of time. Since time is one of the principal assets of the farmer, the proper utilization of it will do much for the success of the farm.

Where such help is required, this office provides written outlines for efficient organization, suitable to each individual case.

Two of such outlines have been furnished and their adoption is being attempted.

In numerous other cases recommendations are constantly being made to improve working conditions. Farmers take very kindly to these efforts and this project is expected to grow in magnitude, as the farmers are advised of its purpose.

DEVELOPMENT OF NEW AREAS

This project is intended to give information on new districts in general and on smaller areas in particular, when such information is called for, giving data and practical reports on the possibilities of the lands to produce crops. Many beginners are in sore need of such information and this office is endeavoring to make it publically known that it will render all assistance possible in advising what lands to select and how properly and economically to bring them under cultivation, and the steps to take to develop the raw lands for crop production.

A series of articles on "Important Factors in Developing a Dry-Farm" have been written by the specialist. A few copies are on hand for distribution. These were published in the Utah Farmer. Several parties have been furnished with copies upon their application.

Upon request of the owners a tract of about 2500 acres on Antelope Island, Great Salt Lake, belonging to Island Improvement Company, was inspected and written report made on its adaptability and possibilities for dry-farming. Also a similar report was made on 6000 acres in Dog Valley, Juab County.

Reports on possibilities of new areas were made to the Director Extension Division, after careful examination of the lands, on the following districts, viz:

Garfield County, John's Valley District. About 50,000 acres.
Uintah County, Diamond Mountain District. About 40,000 acres.
Rich County, Weston Flat District. About 25,000 acres.

Partial examination was also made of a large tract in Escalante Valley, Garfield County, but not sufficient upon which to base a report. These reports have all been published in the Utah Farmer.

SEED DISTRIBUTION

This office is making efforts to locate seeds of merit and to advise farmers where to obtain them. When such seeds are located they are listed and published as widely as possible. Inquiries of those needing seeds are duly answered. By these means a wide and beneficial distribution of the better seeds is effected. Encouragement is always given the farmers to exchange for the best seed obtainable. Information is given of the free work of this office in acting as a clearing house in the exchange and distribution of seeds. Through the office of the Specialist the proper varieties of wheat, beans, corn, and potatoes have been placed on 36 farms.

WAR EMERGENCY WORK

Besides continuing in a general way the work of increased production to meet war requirements, special effort has been made to utilize part of the fallow lands in growing such hoed crops as corn, beans, and potatoes.

Special articles on these crops were published in the Utah Farmer and also in mimeograph form and distributed by the Extension office. As a result many hundreds of acres were so utilized, and from reports to date, although nothing accurate is at hand, the results are very encouraging. It is known that more than 500 acres were planted to beans and a like acreage to flint corn.

The campaign for increased production of wheat, 1,000,000 bushels increase, was worked through this office. Twenty-nine special meetings were held in four of the large wheat growing counties and patriotic appeals made to the farmers for an increased production of wheat. Articles on "Wheat Production, the Need of the Nation" were written by the specialist and published in the farm papers. Distribution of mimeograph copies was made through the County Agents and the Farm Bureaus.

An increased acreage was solicited everywhere and a strong effort put forth for better and safer cultural methods.

While the drought in the Southern Counties caused a complete failure of many of the crops, in spite of this disastrous condition, the Government official statistics show an increase in production of this commodity of 1,579,000 bushels, thus putting our increase of wheat production "over the top" about 58 per cent more than called for.

CORRESPONDENCE

The correspondence of this office continues as an important factor in the dissemination of dry-farm information. Questions touching all phases of farming and farm life come in considerable numbers each week, which are answered personally as time will permit, and generally within a reasonable time. Odd days between visits in the country are employed in this work and also in doing the necessary clerical work of the office. Very little help is available for this work.

OTHER ITEMS

In addition to the above enumerated work, the Specialist has addressed 134 farmers' meetings, institutes and schools, with a

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total attendance of 9905. Visits to individual farms 397; visits to demonstration farms 84.

The specalist has traveled in performance of his work 28,875 miles, working in 20 counties.

He has also assisted county agents in outlining dry-farm projects in three counties: Tooele, Uintah, and San Juan.

The work of this office is curtailed 35 to 50 per cent on account of limited budget for traveling expenses. To meet the demand there should be an allowance of at least $1200.00 per annum for expenses. In other words, for an additional $400.00 the efficiency of the office could be increased 35 to 50 per cent.

Respectfully submitted,
J. W. PAXMAN,
Extension Specialist on Dry-Farming.

REPORT OF FARM MANAGEMENT WORK

To the Director of the Extension Division:

Sir: The general plan of the work in Farm Management during the past two years has been entirely different from that of the previous work. Up to 1917 the work was all investigational in nature, the aim being to secure some facts and factors upon which to base subsequent demonstrations. Since the beginning of 1917 the work has been demonstrational.

AIM OF WORK

The aim of the work during the past two years has been to help the individual farmer keep a record of his business, and to help him study this record for the purpose of putting his business on a more profitable and permanent basis. We have been unable to make the work available to all farmers of the state at once but have tried to distribute it over the state so that the demonstrations would reach as many farmers as possible.

MANNER OF CONDUCTING WORK

The direct supervision of the work has been done by the county agents in all cases and they have carried it on through their Farm Bureaus as much as possible. The Farm Management Demonstrator has had general supervision of the work over the state and has always worked with the county agent in carrying the work to the farmer.

NEW FARMERS' ACCOUNT BOOK

At the beginning of 1917 a new farmers' account book was published. The Utah Bankers' Association coöperated in publishing this book by paying all costs of publication and turning the book over to the Farm Management Department for distribution. Two thousand copies of the account book were published.

DISTRIBUTING ACCOUNT BOOKS

During the past two years about fifteen hundred books have been distributed to farmers over the state; approximately the same number being distributed each year. Most of these books have been taken to the farmers by the county agent, or Farm Management Demonstrator, personally and assistance given in getting the work started. Then during the year from one to four visits have been made to each farmer to give assistance and encouragement in keeping the accounts. At the end of the year the farmers have been given assistance in summarizing and studying the years business where desired. At the end of 1917 about 20 per cent of the coöperators availed themselves of this help and the indicataions are that a much larger percent of the farmers receiving books in 1918 have kept them up to date than in 1917.

MEETINGS AND VISITS

During the two years fifty meetings have been held with a total attendance of 2414. Most of the meetings have been called especially by the Farm Bureau officers or county agents for the purpose of presenting Farm Management work or studying results. They have been well distributed over the State. The Farm Management Demonstrator has made almost eleven hundred personal visits to cooperators either alone or with the county agent for the purpose of checking up account books and giving assistance in studying problems.

COST OF PRODUCTION RECORDS

During the past two years there has been some controversy over the price of cash crops, such as sugar beets and canning crops. Assistance has been given the farmers in several counties in finding the cost of producing these crops and deciding upon a price fair to producer and manufacturer. Price adjustments based on these investigations have made a saving to the farmers of the state of $3,942,910.00, according to the report of the State Leader of County Agents and Specialists. The farmers of several counties are keeping records of the cost of producing the main crops and will continue to do so under the supervision of the county agent and Farm Management Demonstrator.

AIM IN FUTURE

The work will be continued in a manner very similar to that of the past two years. It is planned to extend it greatly by training local leaders and organizing Farm Management Clubs so that it will be possible to reach a much larger number of people. We expect to publish a new edition of the Utah Farmers' Account Book in the near future as the supply is nearly exhausted. Few changes will be made in the form of book already in use.

The farmers of the State are rapidly coming to realize that it is necessary to make a study of the farm business and follow sound business principals in order to compete with other forms of business. The demand for Farm Management work is growing rapidly over the entire State.

Respectfully submitted,

L. A. RICHARDSON,

Farm Management Demonstrator.

REPORT OF SPECIALIST IN DAIRYING

To the Director of the Extension Division:

Sir:—Following is a report of Dairy work for the past bi-ennium.

In developing the dairy industry in the State of Utah, the factors I have had chiefly in mind are "better breeding" with "better feeding and care"; my work being principally with the milk producers; the markets being established to absorb readily all of the milk produced in the State. In line with the better breeding factor I have encouraged the procuring of better bulls and have assisted in establishing three bull associations in various parts of the State, and have also selected, or assisted in the selection of, a number of bulls for private ownership. I have assisted in the selection and purchase of a number of herds of improved dairy cattle. These operations, however, have only included purchases within the State during the last eighteen months, and while some of my efforts have led to bringing of cattle from beyond the State line I have not assisted in their selection. I today visited a herd which had been purchased following inspiration received at a meeting we held in Bennion ward about twenty-one months ago, and there was one or two other herds of the same class in Bennion ward that were purchased from decisions that same meeting had brought about. I cannot say that I assisted in the selection of these cattle, but I feel that their purchase was largely the result of my effort.

In a general way I believe the class of dairy cattle throughout the State is improving, and much better results are being arrived at from a given number of dairy cows than were reached a few years ago.

In many places I find commercial dairying out of the question but yet I find opportunities to advise about better family cows and their value, and I attribute much importance to work in sections where only a few cows are kept on the farms in each instance for family use; for improving the grade of these cows is the best foundation that can be made for future dairy development when commercial dairying may be arrived at. In fact these are the people who sometimes need help the most in dairy matters and the importance of this can be grasped when we consider that one-fifth of the food consumed by the people of Utah comes from the dairy cow, and in the instances where family cows are kept, the percentage of food consumed by their owners in the form of dairy products often averages considerably higher than one-fifth of the total amount.

In regard to the factor of feeding, I have been aiming at a more rational system of care for our dairy cows. Our common practice in the State is to feed lucerne hay exclusively for over six months at a time, because lucerne is a good feed and cheap. At least, that is the prevailing idea, that it is cheap. I have urged extending the rations for our dairy cow especially that some succulent feed be provided and this has brought into prominence the silo as a factor in feeding. I have given much time to silo building, and those silos that have been built justify every effort that has been put forth to extend the use of silos in the State of Utah. Since our first silos were built much information has been put out from various sources about the value of beet tops for silage and a great deal of attention is now being paid to the preservation of the green tops for winter feeding. This is all splendid too, and justifies the stand that I have taken in urging more attention to succulent feeds for winter use. Had the real value of beet tops for winter feeding been learned sooner it would have been well for the agriculture of the State. Many of our farmers now are handling this valuable feed in a very crude manner. The use of beet tops for silage, cured in pits, has caused some curtailment in the building of silos for corn silage. This is to be expected and yet the building of silos will continue to be important as a means of providing succulent feed even in the beet growing district; for growing of corn is bound to become a more important factor in crop rotation and the silo is the best means we know of for handling the corn crop economically. I would not be surprised, as time goes on, to find beet tops placed in permanent silos to quite an extent; for some of our farmers at present in their pit siloing of beet tops are following wasteful methods. Then there are vast areas in the State where cattle feeding is carried on extensively and there are no sugar factories. Consquently, no beet tops or beet pulp. In such places the silo will be a prime factor in feeding operations.

I have not confined the encouraging of silos alone to the dairyman, but have assisted general stock men and in some instances sheep men to build silos. We must have more feed on our farms throughout the entire State to enable us to expand the output of livestock products and the silo is going to be one of the factors that will help solve feeding problems of all classes of farm livestock.

In developing dairying I have urged considering the individual cow as the unit in production and have discouraged basing calculations entirely upon the product of herds. This leads not only to individual feeding, according to a cow's needs, but to a keeping of a record of her products, or, as it is commonly called, "cow testing." This work right now is going on to a greater extent than it ever has done before, notwithstanding the fact that today we do not have a cow testing association in operation in the State, but a great many individuals are keeping private records. This is proved by frequent letters received in the office of the dairy division in the Federal Building, Salt Lake City, asking for blanks for record keeping purposes. These are always furnished and go out free of cost. I am finding them now in stables in all parts of the State and at the recent Fair we held a demonstration showing the importance of this work and I believe the result of that demonstration was to encourage greatly the keeping of records. I believe we have had a greater number of calls for blanks since the closing of the State Fair than have come into the office of the Dairy Division in the same length of time at any other period since I have been associated with the office.

As to the work to be continued, it should be along the lines I have outlined—better breeding better feeding, with emphasis on silo building and more individual work of the owners with their cows, with special emphasis on record keeping.

SUMMARY

Meetings addressed	253
Total attendance	16,728
Farm visits	457
Schools visited and addressed	13
Days with county agents	86

Respectfully submitted,
BEN R. ELDREDGE,
Agent in Dairying.

REPORT OF CORRESPONDENCE-STUDY DEPARTMENT

To the Director of the Extension Division:

Sir: The following is a report of the work of this Department during the past biennium:

There were registered in this department in 1917, 613 students; 293 men and 320 women. In 1918, 1434 students; 263 men and 1171 women. Totals for the two years 2047 students; 556 men and 1491 women.

These totals represent the registration in both the extension classes and the correspondence-study work proper.

The work of the department may be classified as follows: (a) Extension classes of College grade, conducted by members of the faculty of the Institution in localities where ten or more persons organize and make application for instruction in a subject suited to this form of instruction; (b) extension classes organized for those who do not seek college credits; (c) credit courses through correspondence; and (d) non-credit courses through correspondence.

During the biennium instruction was given in the following subjects. The number in each subject is also given.

Subject	1917	1918	Total
Art	5	6	11
Accounting	13	22	35
Agriculture	73	57	130
Dressmaking	5	4	9
English	83	73	156
Economics	22		
Economic Entomology	2	4	6
Eugenics and Genetics	21	2	23
Finance and Banking	37	19	56
Foods	5	9	14
French	3	6	9
Forging		1	1
Geology	16	5	21
German	4		4
History	76	43	119
Harmony and Composition	1		1
Mathematics	19	22	41
Municipal Government	3		3
Panmanship	3	5	8
Political Science	3	8	11
Public Speaking		4	4
Physiology		5	5
Sociology	68	34	102
Stenography	7	4	11
Spanish II	2	2	4
Sanitation	13	6	19
Typewriting	6	5	11

The Geographical distribution of our students is as follows:

UTAH BY COUNTIES

	1917	1918	Total
Beaver	7	5	12
Box Elder	60	82	142
Cache	71	88	159
Carbon	8	9	17
Davis	17	24	41
Duchesne	5	4	9
Emery	24	8	32

	1917	1918	Total
Garfield	1	3	4
Iron	4	5	9
Juab	15	4	19
Kane	6	3	9
Millard	21	9	30
Morgan	6	6	12
Piute	5	2	7
Rich	5		5
San Juan	11	3	14
Salt Lake	93	809	902
San Pete	19	75	94
Summit	8	11	19
Sevier	17	8	25
Tooele	9	6	15
Weber	37	18	55
Wasatch	9	9	18
Washington	8	3	11
Utah	58	214	272
Uintah	11		11
Wayne	6	12	18

Arizona	5	4	9
California	2	3	5
Colorado	2	3	5
Idaho	45	40	85
Iowa		1	1
Canada	2	3	5
Kansas	2	2	4
Louisiana	1		1
Montana	1	1	2
New York		1	1
Nevada		5	5
Oregon	1	2	3
South Carolina	1		1
Texas	1		1
Mexico		1	1
Wyoming	8	6	14

Classified as to vocations there were.

Teachers	269	203	472
Farmers	85	56	141

	1917	1918	Total
Housewives	165	74	239
Students	44	67	111
Merchants	11	1	12
Laborers	11	11	22
Attorneys	3	3	6
Accountants	7	8	15
Stenographers	9	5	14
Carpenters	2		2
Foremen	1	3	4
Mechanics	6	3	4
Unclassified*		1007	1007

**Note*—The unclassified are the classes conducted by Miss Cooper in Salt Lake City, Provo, American Fork and Brigham City.

The number of students completing their courses is very gratifying and the almost uniformly good grades given by the readers of assignments indicate the efficiency of this method of instruction.

The employment of special teachers to read assignments in Economics, Finance and Banking, Sociology and English has added very materially to the grade of work done in the department and as soon as finances will justify I would urge the appointment of sufficient teachers in the departments of Agriculture, Home Economics, Science, Mathematics, Commerce and Mechanical Drawing to relieve the regular teaching staff from work in this department.

Respectfully submitted,
J. H. LINFORD,
Superintendent.

COMMUNITY SERVICE BUREAU

To the Director of the Extension Division:

Sir: In the past biennium the work of this department has been mainly lending plays to schools and clubs, and writing letters of advice about them.

Bulletins on Play Service issued	500
Bulletins of Community Christmas Celebration issued	500

Bulletins on Literature of Rural Life issued	500
Plays lent	210
Books lent	26
Personal Letters of Advice	159

The work has attracted much attention in Utah and in other States, especially in Michigan, West Virginia, New York, Tennessee, Idaho, Montana, Kansas, Massachusetts, and the Dakotas.

Respectfully submitted,
F. R. ARNOLD,
Professor in Charge.

INSTITUTES AND SCHOOLS

During the second year of the biennium just past there was a departure from the usual manner in carrying out institute work. Every county in the State had a County Agent and Farm Bureau organization, which had selected certain definite lines of work for the year, and this year's institute work was to assist the work on these projects so work of the Institutes has been specialized rather than general. Special campaigns were also made in nearly every county, emphasizing increased food production and conservation.

SUMMARY OF INSTITUTES

Counties visited	29
Towns visited	260
Sessions	524
Attendance	33,572

SUMMARY OF SCHOOLS

Number	18
Sessions	643
Attendance	70,408

DEMONSTRATION TRAIN

During the first year of the biennium a demonstration train of nineteen cars was run in coöperation with the Salt Lake Route, the University of California, and the University of Nevada. The train was planned to teach food production and consevation. Lectures were given by the men on food production, and were emphasized by the exhibits. The women's work was handled in a similar way, the following subjects receiving most consideration: canning of fruits and vegetables; remodeling clothes, Red Cross Work. The train visited towns in three States, a day being spent in each town.

Miles traveled	1850
Towns visited	24
Meetings held	19
Attendance Meetings	5,044
Attendance Train	55,400

FAIRS AND EXHIBITS

Extension Division workers have attended many county fairs during the past biennium, where they have acted as judges, and otherwise given assistance. Big exhibits of Extension work were made at the State Fair each year, emphasizing necessity of production and conservation and otherwise assisting in carrying out the war program. Demonstrations were given throughout the work by members of the Extension staff.

RECOMMENDATIONS

It is apparent that the activities for the coming biennium will, necessarily, be the consolidating of the work already launched. The organization has spread during the war over the entire State. This has been made possible by the funds appropriated by Congress during the war emergency. There is now established in nearly every county of the State a Farm Bureau organization with which county Extension agents are coöperating. These forces are now devoting themselves to the execution of a program of agricultural and home improvement in the counties. Many phases of the work included in these county programs are as yet not completed. It would be very unfortunate if it became necessary at this time to withdraw any of the Extension agents who have played such an important part in developing and executing the work to its present state.

It is further recommended that counties, instead of making their appropriations in support of Extension agents direct to the College, assume the entire local expenses of the work, and that the United States Department of Agriculture, and the Utah Agricultural College pay their portion of the money as salary of the agents.

We recommend that county agents and home demonstrators, also specialists, be maintained as at present, and that additional impetus be given to Junior Extension work. We feel that too much cannot be done to train the boys and girls, through Club Work, for the responsibilities of manhood and womanhood in the rural life of the State.

Respectfully submitted,

WILLIAM PETERSON,

Acting Director, Extension Division.

Report of the Committee on

FOOD SUPPLY AND CONSERVATION

(Production Section)

Utah State Council of Defense.

HISTORICAL

A few days previous to the declaration of war in April 1917, the President of the Agricultural College called a meeting of the County Chairmen of that institution to consider ways and means of putting the agriculture of the state in a position to meet any emergency which might arise. At this preliminary meeting an organization was effected with the President of the College as Chairman and a member of the College Faculty as Executive Secretary.

Upon the creation of the State Council of Defense, the organization arranged by the Agricultural College was merged into the Committee on Food Supply and Conservation, and the President of the Agricultural College made Chairman of the Committee and the work temporarily transferred to Salt Lake, the Executive Secretary, designated by the Agricultural College, acting in the capacity of Secretary of the Committee on Food Supply and Conservation, and Assistant Secretary of the Council.

This arrangement continued until the passage of the National Food Control Act, when a Federal Food Administrator for Utah was appointed. The work of the Agricultural College, the Council of Defense and the Food Administration was merged,—the Executive Secretary of the Committee on Food Supply and Conservation becoming Executive Secretary of the Federal Food Administration for Utah.

This arrangement has continued to date, with the exception that the Federal Food Administration for Utah created a Production Division of which the Executive Secretary became the Chief.

POLICY

The aim of the Production Section of this Committee has been to stimulate the growing of staple food crops and to this end the committee has maintained constant and sympathetic contact with the growers, responding to every appeal for assistance with a view of averting any preventable loss in crop production. The establishment of new agencies has been avoided as far as possible. The work of existing organizations has been coordinated to prevent any duplication of efforts or waste of energy. Conspicuous among the cooperating forces are the Agricultural College with its extension forces, the U. S. Food Administration, U. S. Department of Agriculture, the State Farm Bureau. Various state and private agencies and individuals have likewise unselfishly responded to every appeal for assistance which has been made upon them.

SEED DISTRIBUTION

The winter of 1916 and 1917 was unusually long and severe and the spring very late. The seed stocks, both commercial and those in the hands of the farmers were very low and one of the first problems attempted was that of supplying seed; first: in locating available commercial stocks and, second: providing financial assistance for the farmers who were unable because of the high prices to provide themselves with the seed necessary to plant the available land. This work was handled by the Seed Committee, consisting of B. F. Redman, W. R. Wallace and Ben U. Siegel, in coöperation with the Committee on Food Supply and Conservation. The seed was furnished the growers and where necessary a crop mortgage bearing six percent interest, payable at harvest time, taken. This work was continued during the season of 1918. In the spring of 1917, seed to the amount of $31,733.61 was supplied; and the spring of 1918, $21,768.29 was advanced for spring planting and $1,262.25 for fall planting of grain, making a total of $54,804.15. The office detail was handled by the Secretary of the Committee, while the field work, connected with the approval of the loans was done by the County Agricultural

Agents of the Agricultural College and the Farm Bureaus. A tabulataion of the amount of seed distributed is as follows:

Variety	1917 lbs.	1918 lbs.	Fall 1918 lbs.
Wheat)	103,045	358,022	35,400
Oats)		45,936	
Barley)		18,640	
Potatoes	417,094	1,750	
Beans	41,607	1,204	
Alfalfa		924	
Miscellaneous	840	600	
Corn	9,513	577	
Rye		250	2,111

FARM LABOR

The mobilization of the military forces during 1917 caused an acute shortage of farm labor which required some special effort to meet. Especially was this true of labor for thinning the beet crop and later for the harvesting of crops. The problem of thinning beets was met by organizing the school boys of Salt Lake and other towns, including Tooele, Park City, Garfield, Eureka and Provo into the Boys' Working Reserve of the United States Department of Labor. A total of 528 boys were utilized in various parts of the state in this work.

APPLE BOX SHORTAGE

The war created a great many abnormal conditions which required considerable effort to adjust. During the fall of 1917 there was a serious shortage of apple boxes. This resulted from the disturbances to the normal channels of the lumber trade. The growers for the most part left the ordering of their apple boxes until late in the season as was their usual custom and discovered that apple boxes were not available. The Council appointed a Special Committee, consisting of W. C. Geddes and A. L. Brewer of Ogden and F. S. Murphy of Salt Lake to coöperate with the Committee on Food Supply and Conservation to meet the situation. Through the efforts of this Committee 200,000 boxes were secured for delivery to the growers which resulted in considerable saving of fruit and allowed a normal marketing of the crop.

COAL FOR THRESHERS

The fuel situation likewise became serious during the summer and fall of 1917. Large industrial plants with thoroughly equipped traffic departments were able to get coal, while men operating threshers were unable to secure sufficient coal to operate their machines. This was made a special project and immediate delivery of 75 carloads of coal was secured and the situation relieved.

CROP PEST ERADICATION

Serious grasshopper outbreaks threatened the crops during the growing season of both 1917 and 1918. The efforts of the Committee in this direction were to see that the necessary materials were available and to organize affected areas to fight the pest. During the season of 1917 and 1918, 18,640 pounds of white arsenic were furnished to growers in the grasshopper control work. Besides this other materials to the amount of $234.75 were supplied.

EMERGENCY IRRIGATION

Owing to the light snowfall during the winter of 1917-1918, the supply of irrigation water for the growing crops of 1918 was unusually low. A very large acreage of the state was threatened with a serious reduction in yield because of lack of irrigation water. This was made a special project and an effort made wherever possible to secure water for crops which were threatened with destruction from drought. This work covered a wide range of activities. Local disputes involving the use of water, securing rights-of-ways for contributed water, the transfer of irrigation water to canals in drouth areas, and the use of water power rights for irrigation were among the features of this project. The foundation of this work was an appeal based on the national necessity for increased food production to which there was an unusually hearty response and sacrifice on the part of those contributing the water. Under this project water for more than 5,000 acres was supplied.

TRANSPORTATION

The unusual demand upon the railroads for equipment has in many cases resulted in a car shortage for the movement of food stuffs. Frequent complaints were received where cars were not available for moving perishable food stuffs and livestock. These complaints were vigorously followed and the matter taken up both with local railroad authorities and the Administration at Washington with the result that relief was secured. Notable among the efforts along this line was the movement of the peach crop from Utah County for 1918 when, through a patriotic appeal by the Food Administration, 152 iced refrigerator cars were secured and the fruit crop of that district saved. During the fall of 1918, approximately 150 sheep and cattle cars were, also, secured for the fall movement of livestock.

SPECIAL PRODUCTION CAMPAIGNS

SUGAR BEETS

The National necessity for increased sugar production was made the subject of a special project during the spring of 1918. Through the Food Administration in coöoperation with the Agricultural College and State Farm Bureau, a special campaign among all the beet growers was conducted which resulted, in spite of serious local opposition, in an increase of ten percent in the acreage devoted to sugar beets. On this increased acreage sufficient sugar was produced to provide the requirement of the State of Utah for one year under the rigid system of rationing inaugurated by the Food Administration.

HOG PRODUCTION

A special campaign for increased production of hogs was, also, conducted,—the work consisting mainly of a distribution of brood sows, which would otherwise have gone to slaughter, among the farmers. Very satisfactory results were obtained from the Hog Campaign. The Monthly Crop Report, issued by the Department of Agriculture for April 1918 (Vol. 4, No. 4, page 35) has some very interesting figures in this connection. Compared with the number of brood sows on the farms April 1st, 1917, Utah shows 120 percent which is the highest percentage of any state in the Union. A still more interesting fact is shown with the eleven Rocky Mountain and Pacific Coast states. With the exception of Nevada, Colorado and Wyoming, all the states show a decrease; and Nevada and Colorado being the only ones in this group besides Utah that show any increase. The average percentage increase for the whole United States is 109.5 percent.

INCREASED POULTRY PRODUCTION

A special campaign was, also, conducted to increase the poultry production of the state. A special appeal was sent to the public generally to increase the flocks of poultry in the state, to which there was a hearty response on the part of the people.

FINAL

While the efforts of this Committee have been directed toward meeting emergencies which have been created by the war, many of its activities will have permanent application. Precedents have been established and systems suggested which will help very materially in increasing our agricultural efficiency. This will be an advantage to us in meeting the world competition which will follow the war.

Respectfully submitted,
E. G. PETERSON,
Chairman.

J. EDWARD TAYLOR, Secretary.

BRANCH OF THE AGRICULTURAL COLLEGE

To the President of the College:

Dear Sir: Following is a summary of the financial needs of the Branch Agricultural College of Utah for the biennium beginning July 1st, 1919:

ESTIMATES FOR SPECIAL APPROPRIATIONS

Repair and Improvement of Old Buildings.		
Library Building:		
Interior remodeling to obtain more floor space for wood work	$ 900.00	
Repair plaster walls, ceilings, floors, painting, etc.	650.00	
Science Building:		
Reinforce foundation (Ordered by State Inspector)	750.00	
Outside door to Dom. Sci. lab. and basement room for laundry including equipment	1,000.00	
Mechanic Arts Building:		
Wash room and toilets for shop, plumbing for fire protection	800.00	
Heating Plant:		
General repair of steam lines, boilers, coal bins, new radiators	1,000.00	
Barn, corrals, sheds:		
Painting entire group	600.00	
		$5,700.00
Campus Improvement:		
To continue grading, lawns, walks, gardens, etc., and to improve and extend fire protection and sprinkling facilities	2,000.00	
		2,000.00

Equipment:		
Tractor for study, demonstration, and farm work	1,600.00	
Auto truck for study, hauling coal, cement and miscellaneous freight	4,000.00	
Livestock (cattle, sheep, hogs)	1,000.00	
Scales for weighing livestock	200.00	
Dipping vat for sheep and hogs	75.00	
Fencing on farms, pastures and campus	250.00	
Additional laboratory equipment for chemistry, physics, soils, biology, etc.	1,500.00	
Equipment for auto-mechanics, blacksmithing, cement mixer, etc.	4,500.00	
Steel lockers for students use	750.00	
Books for Library	1,000.00	
Book stacks for Library	450.00	
Sewing machines	500.00	
Replacement of worn-out farm implements and machinery	500.00	
		16,325.00
New Buildings:		
Green house	5,000.00	
Dairy (including equipment)	5,000.00	
Second unit of poultry house	200.00	
Feed room in sheds	300.00	
Cement root cellar	350.00	
Addition to shops for auto and tractor work	2,500.00	
Hog pens, cement floors	400.00	
		13,750.00
Grand Total of Special Appropriations		$37,775.00

ESTIMATES FOR GENERAL MAINTENANCE

Salary budget, payroll and all over-head expenses will be approximately $90,000.00 for the biennium or $45,000.00 for each year. The mill tax, and occupation tax, and income from fees and sales will be about $39,000.00 for the school year 1918-19. This is a decrease of $4000.00 from mill tax due to lowering of levy, and a decrease of $6000.00 of original estimate of occupation tax, thus making a total reduction of $10,000.00 of the es-

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timated income for this school year. Due to this reduction of estimated income upon which this year's budget was based, there will probably be a deficit in 1918-19 maintenance of about $2000.00. I do not have necessary data to make estimate of tax income for next biennium.

Respectfully submitted,
ROY F. HOMER,
Principal.

ACCOUNTING AND BUSINESS PRACTICE

To the President of the College:

Sir: I have the honor to report herewith the Department of Accounting and Business Practice for the last biennium.

ENROLLMENT

I am very happy to report a substantial increase in enrollment in spite of the war. This is undoubtedly due to the fact that we have emphasized short, intensive war emergency courses. The increase would have been augmented some had we continued to give commercial arithmetic and business correspondence. These courses, however, were turned over in 1917-1918 to the Mathematics and English Departments.

TABLE SHOWING REGISTRATION BY SUBJECTS AND BY TERMS FOR THE YEARS 1916-17, 1917-18, 1918-19

	1916-17		1917-18				1918-19	Winter
	I	II	I	II	III	Summer School	S.A.T.C.	Civilians
Bookkeeping and Accounting	99	119	76	88	97		45	45
Com'l Arith. and Bus. Corres.	10	29	......	......	......		......	......
Office Mg'nt	....	......	......	......	......		42	14
Penmanship	72	62	25	30	43	24	....	14
Stenography	47	58	74	102	97	16	1	60
Typewriting	72	104	97	135	95	12	16	86
Salesmanship	....	......	......	......	15		....	219
S. A. T. C.	....	......	......	......	......	....	104	104
Total	300	372	272	355	347	52		323

RECONSTRUCTION

Now that the war is over, there will be a great many returning soldiers, partially disabled, who are untrained for business positions. I believe the policy of offering short, intensive courses in the "Trades of Business" should be continued. I believe the work should be largely planned with respect to certain objectives and should be very largely prescribed. Accordingly, the Department has outlined short one and two term courses preparatory to the Civil Service or general business positions as follows:

1. Stenography and typewriting.
2. Bookkeeping.
3. Salesmanship.
4. Assistants in marketing.
5. Assistants in transportation.
6. Office assistants, file clerks and statisticians, etc.

The Department further hopes to plan consistent courses preparatory to the professions of business such as public accounting, auditing, office management, secretarial work, credit and collections, advertising and sales management, traffic and transportation and business management.

I would suggest that a new man trained in work similar to that given in the Harvard Graduate School of Business Administration be employed to assist in conducting these courses.

It has been the pleasure of the Department—with the coöperation of the School of Home Economics—to outline joint business courses for women, announcement of which appears in the catalog. The Department hopes to coöperate in every way possible with the Administration in meeting the present emergencies, and in developing a greater A. C.

Very truly yours,
P. E. PETERSON,
Professor of Accounting and Business Practice.

DEPARTMENT OF AGRONOMY

To the President of the College:

Sir: I have the honor to report herewith the Department of Agronomy for the last biennium.

The Department is each year increasing its usefulness to the people of the State by helping to train the future farmers in modern methods of agriculture. Many of the students trained in the Department are returning to the farm where they are examples to their communities; others are becoming the professional agriculturists such as teachers, county agents, and government specialists.

The enrollment has been as follows:

No. of Course	Name of Course	Number of Students 1914-15	1915-16	1916-17	1917-18	Total
a	General Agronomy	27	48	34	18	127
1	Cereal Crops	35	46	41	27	161
2	Root Crops	38	30	29	24	121
3	Forage Crops	38	30	29	20	117
4	Seeds and Weeds	----	14	----	----	14
6	Soil Management	44	19	25	15	103
7	Soil Survey	9	----	3	----	12
8	Management Arid Soils	----	15	----	----	15
9	Dry-farming	45	34	34	13	126
10	Irrigation	48	27	9	10	94
11	Soils Laboratory	7	6	----	----	13
12	Seminar	21	35	8	9	73
13	Research	9	8	3	----	20
	Special—Manures Sugar beets	8	----	----	13	21
	Farm Management	40	27	25	13	105
	Advanced Farm Management	----	----	12	----	12

During 1917-18, Professor George Stewart taught courses a, 1, 2, 3, 9, 12, and Farm Management, and part of a special course in sugar-beets; Professor O. W. Israelsen taught courses 6 and 10; Dr. F. S. Harris taught part of the special course in sugar-beets. So far in the 1918-19 year only two courses have been taught. These are Agronomy 2 and Farm Management. Professor Stewart is teaching both courses.

CHANGES IN PERSONNEL

During the biennium Mr. A. F. Bracken resigned to engage in county-agent work. He has since entered the employ of the Office of Cereal Investigations, U. S. Department of Agriculture. Messrs. H. J. Maughan and N. I. Butt have resigned to engage in Farming. Professor George Stewart has returned from his leave of absence and has resumed his duties in the Department.

Mr. Irving J. Jensen was employed as assistant in the Department, but after several months' Service he entered the army. Dr. D. S. Jennings has been employed to take charge of soil surveys in the Experiment Station. He will also do some teaching in the Department.

ADDITIONAL WORK

The work in Farm Management which was previously given by the Department was organized as a separate department, but since no one was placed in charge the work has continued to be given by members of the Agronomy staff.

The faculty of the Department is constantly called on for information covering the various phases of agriculture. Thousands of letters are written every year and numerous articles are published in farm journals and other periodicals. Much time is also spent in doing extension work, such as lecturing at farmers' institutes, accompanying demonstration trains, and aiding county agricultural agents.

NEEDS

The Department finds itself much cramped in its present quarters. The rooms it is now occupying were arranged for different types of work than that required in Agronomy. The laboratories are not well arranged and the space cannot therefore be used to good advantage. If possible, quarters adapted to the kind of work should be provided.

Quite a number of pieces of large apparatus are very much needed. These may be summarized as follows:

1 set grain grading apparatus.
1 apparatus for milling tests.
1 fireproof herbarium for plant breeding material.
1 set seed inspection apparatus including U. S. D. A. germinator.
12 triple beam balances.
12 Chamberland-Pasteur filters with pump.
2 analytical balances.
6 plain tables for soil mapping.
2 solution balances.
1 large soil centrifuge.

This department, in common with the other departments of the Institution, finds itself crippled for more land to be used for instructional purposes. It also badly needs a vegetation house where plants can be made to grow during the winter. The lack of such a place makes it impossible to carry on certain experiments that the best teaching demands. It is sincerely hoped, therefore, that a vegetation house may be provided in the near future.

It will be necessary also to provide an additional instructor to take the place of Mr. Jensen since the present staff cannot handle the work under normal conditions.

THE RECONSTRUCTION PERIOD

We feel that in the period of reconstruction following the close of the war there will be a great demand for instruction in all branches of agriculture. Provision should be made to handle this situation in an effective manner. This will call for more room, more equipment, and a larger teaching force.

Respectfully submitted,
F. S. HARRIS,
Professor of Agronomy.

ANIMAL HUSBANDRY DEPARTMENT

To the President of the College:

Sir: I have the honor to report herewith the Department of Animal Husbandry for the last biennium:

Course	1916-17	1917-18			Present Enroll-ment	Instructor
	2nd	1st-	2nd-	3rd		
Animal Husbandry 1	30	25	35		35*	Prof.Geo.B. Caine
Animal Husbandry 2	37		14	14		Prof.Geo.B. Caine
Animal Husbandry 3a			7			Prof.W.E. Carroll
Animal Husbandry 4				8		Prof.W.E. Carroll
Animal Husbandry 5	4	10			4*	Prof.Geo.B. Caine
Animal Husbandry 6			27			Prof.Geo.B. Caine
Animal Husbandry 7			7			Prof.Geo.B. Caine
Animal Husbandry 8	18			11		Prof.Geo.B. Caine
Animal Husbandry (c)				14		Prof.W.E. Carroll
Animal Husbandry 25		2	2	2		Prof.W.E. Carroll
Dairy........................ 1			9			Prof.Geo.B. Caine
Dairy........................ 3	12			7		Prof.Geo.B. Caine
Total Enrollment....	101	37	101	56	39	

*It is impossible to separate the S. A. T. C. students from the others at present because of no classes being held.

Note.—In addition to the class work, members of the Department are called out on Institute and Roundup work and have had practically all the judging of livestock at County Fairs to do. One member is secretary of the Utah Dairymen's Association; another is secretary of the Utah Livestock Breeders' Association and secretary and executive officer of the Utah State Board of Horse Commissioners.

At the present time due to the conditions of the country the Department is not teaching nearly so many courses as will be absolutely necessary in the near future. If Dr. Carroll returns as head of the Animal Husbandry Department then it will be necessary to have a man in Dairy Manufacturing and two assistants, one for animal husbandry and one for dairying.

The dairy work has been very much hampered in the past due to equipment and buildings. We now have the building; with some additional equipment and with a man we will be able to accomplish a great deal along this line.

The Department of Range Management is also fundamental to the needs of the Institution and State and therefore should be organized in the near future. Assistance in the way of fellowships for the Department would be very desirable and would aid materially in the work.

Most of the dairy equipment now on hand is very old and worn out. It will, therefore, be necessary to buy considerable new up-to-date machinery to run our plant and demonstrate the efficient use of dairy products. An estimate of this has already been filed with the President for consideration.

As soon as the S. A. T. C. work is over and we are able to move to the Livestock building which was built for the Department, there will be some office equipment necessary. Shelves for library, cases for storing of equipment in the laboratory, and show cases for display work will be very important in the new Livestock building.

For the development of the flocks and herds it will be necessary to have money for the purchase of new sires. For the Department of Animal Husbandry and Dairy Production, the purchase of land in the vicinity of the college where we can operate a farm and make it self-supporting, will ultimately be neessary. We are handicapped to a great extent at the present time because of too little land upon which to produce feed for our animals.

Respectfully submitted,

GEORGE B. CAINE,

Associate Professor of Animal Husbandry.

DEPARTMENT OF FINE ARTS

To the President of the College:

Sir: I have the honor to report herewith the Department of Fine Arts for the last biennium.

During the last two years the Department of Fine Arts has given the following courses:

		1916-17	1918-19
Art. 1.	Study of composition of line and form, and the principles of good taste	10	34
Art 2.	Composition study of the appreciation of Art. Painting. Architecture. Sculpturing.		
Art 3.	Free hand drawing for students in Mechanic Arts.		
Art 4.	Free hand drawing for students in Agriculture.		
Art 5.	Studio	11	3
	Drawing. Painting. Sculpturing. Illustrating. Illustrating for advertising. Illustrating for scientific purposes. Pictorial composition.		

I have also been instructing a class in Art 21, which is the principles of design and color, theory and relation to household furnishings and costume.

In addition to the classes of the year 1917-18, I have instructed and had charge of the Military classes in Mapping and Sketching and the Sand Table. I took charge of this work at the request of Captain Abbot, as the work required more nearly fit into our Department of Drawing than any other department of the College.

During the present year I have assisted in the instructional work in Military Mapping and Sketching, which has been required of practically all male students of the Institution.

The teaching force is adequate for interior instruction at the present time, but with the return of peace there will be a greater demand for Art by correspondence, extension classes, and in the Extension Division. With the development of the extension work in Art, more assistance will be needed.

Respectfully submitted,

J. S. POWELL,

Professor of Fine Arts.

DEPARTMENT OF APPLIED ART

To the President of the College:

Sir: I have the honor to report herewith the Department of Applied Art for the last biennium.

1. (a) Enrolled in Department at present, 46.

(b) Art 27 B, E, G, H, & K, Sec. 1, 8 enrolled, C. Fletcher

(c) Art 27 B, E, G, H, & K, Sec. 2 32 enrolled, C. Fletcher

Art 27 B, E, G H, & K, Sec. 3, 6 enrolled, C. Fletcher

In this work, which covers five hours daily, I am assisted by Mr. Huppi. In addition to this work, before the quarantine I was assigned to two half day classes in Military Sketching with an enrollment of practically 100 in each class. During this time I also conducted the class in Textiles and Clothing 5a with 14 enrolled, and Art 1, Section 2, with 17 enrolled, also Art 5 (Fine Art Studio) with 3 enrolled. Since quarantine, Professor Powell has handled the S. A. T. C. work, and I was assigned to handle both sections of Art 1 with 34 students and his two students in Mechanical Drawing.

During 1917-18, our enrollment was as follows:

First Term	Enrolled	Instructor	Second Term	Enrolled	Instructor
Art 22a	6	C. Fletcher	Art 22b	5	C. Fletcher
Art 25	2	C. Fletcher	Art 25	3	C. Fletcher
Art 27, Sec. 1,	19	C. Fletcher	Art 27, Sec. 1,	40	C. Fletcher
Art 27, Sec 2,	19	C. Fletcher	Art 27, Sec. 2,	17	C. Fletcher
Art 27, Sec. 3,	2	C. Fletcher	Art 27, Sec. 3,	4	C. Fletcher
Dom. Art 11	2	C. Fletcher	Dom. Art. 11 b	2	C. Fletcher
			Art 21	8	Prof.Powell
Total............	50		Total............	79	

Third Term			Summer School		
Art 25	2	C. Fletcher	1st Term	15	C. Fletcher
Art 27, Sec. 1,	42	C. Fletcher			
Art 27, Sec. 2,	30	C. Fletcher	2nd Term	36	C. Fletcher
English 21,	12	C. Fletcher			
History 11b,	2	C. Fletcher			
Total............	88		Total............	51	

2. During the next biennium we should continue the work of an assistant to the instructor in charge. No other assistance is needed.

3. The following new equipment and supplies will be needed to do the most effective work:

Office equipment:	
Desk	$ 75.00
Filing cases	75.00
Built in cupboard	25.00
Rugs, drapery, etc.	100.00
Chairs and Settee	50.00
Incidentals	50.00
	$ 375.00

Studio Equipment in Applied Art:

Drawing Boards	30.00	
Supply room equipment	75.00	
Metal room equipment	150.00	
Illustrative Material in design and color	100.00	
Gas Burner for Kiln	50.00	
Library room equipment	100.00	
Repairs	100.00	
Supplies	400.00	1005.00
		$1380.00

4. Rooms 327 and 329, should be converted into a crafts workship for work in metal, block-printing and textile dyeing. They should be connected to the present crafts room by arched doors from the kiln room. This will give us much needed room and will enable us to supervise our work better.

Room 328, the present "metal shop" should be converted into an art reference and tracing library. This is greatly needed for the better preservation of our illustrative material and will make it possible for our students to come into contact with more fine things which we need so much here. We are anxiously waiting for the conversion of Barracks No. 1 into the Engineering building. At that time more help will be needed in order that the possibilities of pottery, terra cotta, and cement may be studied as to their use in employing our most excellent native materials. This should be gone over carefully and a more definite report made later.

5. Following along the line of the above suggestions much help will come to our work in connection with Home Economics. The work in time will be more and more in demand by the men because knowledge of how to make and enjoy a beautiful home is not the work of the woman alone, any more than the handling of the purse should exclusively be the task of man. Better opportunities must soon be given along the lines of commercial art, in sign writing, window and display work, etc. This work should be woven in with courses in salesmanship and advertising. The public schools of the State have adopted the Prang text books on Industrial Art, which is good, but the vast majority of teachers do not understand the work therein outlined. Until teachers are better prepared some supervision should be given them. This is not our field, except as we can reach the students through the medium of our club work and what moral influence we can use

with the forces in the State. The new Smith-Hughes work has provided a supervisor in Home Economics in the person of Miss Cox, but a similar supervisor should be appointed to care for Domestic Art and care, too, should be taken that she is prepared to handle the work from its art or design side, for it is in this that the greatest need is felt. Our Domestic Art workers at the College, I am sure, will heartily coöperate with the idea. Such a supervisor should also understand the House Furnishing problem.

Respectfully submitted,
CALVIN FLETCHER,
Professor of Applied Art.

DEPARTMENT OF BACTERIOLOGY AND PHYSIOLOGICAL CHEMISTRY

To the President of the College:

Sir: I have the honor to report herewith the Department of Bacteriology and Physiological Chemistry for the last biennium.

The courses offered by the Department, together with the number of students in each, are given below:

	1916-17	1917-18	1918-19
Agricultural Bacteriology	28	Not given	35
Household Bacteriology	13	8	Winter term
Pathogenic Bacteriology	7	Not given	Winter term
Soil Bacteriology	5	4	Spring term
Dairy Bacteriology	3	2	8
Sanitary Analysis	2	2	Spring term
Sanitation	78	54	16
Physiological Chemistry	33	33	Spring term
Military Sanitation	....	....	370

The laboratory work in Agricultural and Household Bacteriology was conducted by Mr. Goldthorpe who was appointed in the fall of 1917 to take the place of Mr. Anderson who resigned to accept a position in the Price High School. During the remainder of the time the laboratory work in these courses and the teaching of Dairy Bacteriology and Military Sanitation was conducted by Mr. Carter. The other courses have been taught by the head of the Department.

During the school year, 1917-18, Mr. Carter was on leave of absence doing work in sanitation for the Public Health Service. He had charge of the dairy sanitation at Fort Oglethorpe, Tennessee. But with the beginning of the present school year he returned to the College and has charge of the teaching of Military Sanitation.

In addition to the teaching, the Department has been carrying on definite lines of research work, the results of which have been reported in a number of papers published as station bulletins or the scientific journals of the country.

Due to lack of classroom facilities it has been necessary to hold all lecture work in the laboratory, a condition which is far from satisfactory. If possible, therefore, arrangements should be made for a classroom for Bacteriology and a laboratory for work in Dairy Bacteriology.

Furthermore, in the past it has been the policy to purchase, with the funds allotted to the Department, one or two new microscopes each year. Due to the great increase in price of chemicals, the allotment recently has not been sufficient to purchase the necessary supplies, and the Department is badly in need of additional equipment—especially microscopes. Therefore, there should be appropriated to the Department next year three thousand dollars ($3000.00), in addition to the regular assignment, for the purchase of microscopes, an incubator, a media desk, and other equipment which is essential to the doing of efficient work.

Respectfully submitted,
J. E. GREAVES,
Professor of Bacteriology and Physiological Chemistry.

DEPARTMENT OF BOTANY

To the President of the College:

Sir: I have the honor to report herewith the Department of Botany for the last biennium:

Mr. Richards will be back next year. We expect also to have Mr. Nuffer remain and we expect to need one other part time to full time instructor in Botany.

A microscopic projection apparatus, a steam autoclave, an electric oven, a combined thermo-hygeograph and a planimeter are needed in addition to the glassware, books, and other supplies. A total of $500.00 will almost cover the cost.

Botany is the very foundation of agriculture. If properly taught it will make the student acquainted with plants and the laws of plant growth; it will acquaint him with the parts of plants and how these may be modified by treatment. To teach Botany successfully the student must have access to plants and a place in which plants can grow. In the past the Botany Department has been greatly handicapped. Frosts have killed the plants about November 1 and they have not come on again until about April 1. For five precious months when the student ought to be working with living plants, he is forced to depend upon antiquated specimens in formalin, or the equally loathsome dried specimen. We need a greenhouse. We need it badly.

Five, six and seven are discussed in the report of the Director of the School of Agriculture.

Respectfully submitted,
GEORGE R. HILL,
Professor of Botany.

DEPARTMENT OF CHEMISTRY

To the President of the College:

Sir: I have the honor to report herewith the Department of Chemistry for the last biennium:

According to the records there were enrolled in Chemistry for 1916-17, 375 students, the major part of whom were in Chemistry I and Ia.

For the year 1917-18 there were enrolled 246.

The enrollment for this year up to date is 141, of which 57 are S. A. T. C. men.

New sections will begin the second term, which will practically double this amount.

The subjects as taught at present are:

Subject	Number	Teacher
Chemistry I	40	M. C. Merrill
Chemistry Ia	56	J. C. Thomas
Chemistry 2	12	J. E. Greaves
Chemistry 4	21	J. C. Thomas
Chemistry 6	4	M. C. Merrill
Chemistry 8	8	J. C. Thomas

Desk.—We have room for 160 students at present in the inorganic laboratory. From the present outlook we will have to assign two students to one desk beginning the second term. This of course, is very unsatisfactory. I, therefore, recommend that one more desk be installed in the inorganic laboratory, and thus accommodate forty more students.

Needs.—Our store room is so small that it is difficult for us to keep a sufficient supply of apparatus and chemicals on hand for the year. A room in the basement of the Chemistry Building could be fixed up which would greatly relieve the congestion.

I would suggest that the east side of the main laboratory be divided off as weighing room for the students in inorganic chemistry, and a place where they could write up their experiments.

We need, also, a laboratory and weighing room for the students in quantitative analysis. This work is of such a nature that it is impossible to get good results when they have to work along with other students taking different classes.

Help.—In order for us to do the work as given in the catalog and thus keep pace with the times, it apears to me that we shall need three men to do the teaching; two assistants in the laboratory and one man in the store room.

It has also occurred to me that a very large part of the work given in our high schools and colleges is of such a nature that the students, on leaving school, find it very difficult to apply.

In our Department it will be the aim to teach the subjects so the students will be able to apply their learning to the practical problems of life.

As already submitted, the money needed for supplies and repairs for the next biennium would be approximately	$5,000.00
Store Room Keeper	4,00.00
Two assistants in laboratory	600.00
Total	$6,000.00

Respectfully submitted,

J. C. THOMAS,

Department of Chemistry.

DEPARTMENT OF ENGLISH

To the President of the College:

Sir: I have the honor to report herewith the Department of English for the last biennium.

1. Department enrollment:

Civilian students in residence	200
Civilian students in correspondence	25
S. A. T. C.	2
Total	227

Classes taught with enrollment and instructors.

In residence:

English	c	16 students	Professor Ogburn
English	6	14 students	Professor Ogburn
English	7	44 students	Professor Ogburn
English	7	6 students	Professor Ogburn
		80	
English	c	33 students	Professor Kyle
English	19	16 students	Professor Kyle
English	7-1	10 students	Professor Kyle
English	7-2	11 students	Professor Kyle
English	6	12 Students	Professor Kyle
		85	
English	12	20 students	Mrs. Fonnesbeck
English	8	10 students	Professor Pedersen

By correspondence

English	12	9 students	Mrs. Fonnesbeck
English	c	5 students	Mrs. Fonnesbeck
English	b	2 students	Mrs. Fonnesbeck
English	6	2 students	Mrs. Fonnesbeck
English	7-1	2 students	Mrs. Fonnesbeck
English	7-2	1 student	Mrs. Fonnesbeck
		21	

In vocational section of S. A. T. C.,—not enrolled in the English department.

Two lectures daily to groups of about 50 soldiers on war aims or recent history.

Professor Pedersen.

2. Probable teaching force required during the next biennium: There is a growing demand for business English. Our collegiate sections are already too large running as high as 45 to 50. Such sections need division for effective work. A similar need is felt in the high school courses. The commercial department urges that the business students be segregated from the ordinary academic students for concentrated work in business drill. If this request is to be met as well as that of reducing the sections in the collegiate work, we shall need next year an additional instructor. I recommend this, in view of the fact that national reconstruction demands will put a premium upon students with business training.

3. New Equipment and Repairs:—We have some dictionary stands that have fallen to pieces. These should be repaired. Professor Kyle would like a small book case in her recitation room. The department would profit by some literary maps. These are small needs. On the whole we are well equipped as regards such items. All large classes in literature are handicapped in their study and progress because the students cannot get at the books for outside reading. We need duplicate copies of standard works, or better multiplied copies, to go round. My class in recent literature, as a case in point, is forced to spend annually $20 to $35, individually, for books. This is a powerful deterrent for the poor students of whom we have many. They should not be denied the opportunity of induction into these fields. The same difficulty obtains as to any literary period the department might choose to study in a course and even, as suggested above, in the larger general courses. A library appropriation of $1500 to $2000 would be a boon to the students of the Agricultural College of Utah.

4. Additional Rooms Needed.—A special room to house the Larsen library now included in the main library would be a stimulus to literary activity. This would become a sort of sanctum sanctorum from which the literary pilgrim could get special

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drafts of inspiration. We all know what such centers mean to the cultural growth of the larger institutions of our country. The Larsen library is an excellent nucleus for such a place here. Its segregation in a special room suitably fitted up with works of art and statuary would conduce towards adding to, building upon, this very significant beginning.

5. General Suggestions.—There is great danger that the U. A. C. always a practical school will swing, under the stress of the reconstructional demands facing the country, to the ultra-practical. It would be unwise, of course, for the Institution to stand aloof from the needs of the hour as they arise. At the same time it must not be forgotten that, after all, things of the spirit are of first importance. One of the greatest lessons the world, Germany in particular, has learned from the war is that a one-sided, practical, applied education will lead a nation upon the rocks. We must continue to follow the gleam of the ideal.

I would suggest, therefore, that the administration of the Utah Agricultural College give every possible encouragement to the liberal arts in order that a safe and sane balance be kept in the educational program of the College.

Respectfully submitted,

N. ALVIN PEDERSEN,

Professor of English.

DEPARTMENT OF ELOCUTION AND PUBLIC SPEAKING

To the President of the College:

Sir: I have the honor to report herewith the Department of Elocution and Public Speaking for the last biennium.

The number of students enrolled in the department to date is smaller than for several years past, owing to the unusual condition prevailing at the beginning of the school year. I am hoping that the second semester will see a much larger enrollment, since normal conditions will prevail, and the Winter Course students will also enter at that time.

The following courses are taught by me personally:

	Enrollment
Vocal Expression	5
Vocal Interpretation	12
Extemporaneous Speaking	5
Public Speaking	4
Dramatic Interpretation	....
Total	26

Respectfully submitted,

SARA HUNTSMAN,

Head of Department of Public Speaking.

FARM MECHANICS DEPARTMENT

To the President of the College:

Sir: I have the honor to report herewith the Department of Farm Mechanics for the last biennium.

1. Enrollment of Students: S. A. T. C.

Vocational:	Auto Mechanics	Professor Humpherys,	192
Vocational:	Chauffeurs	Mr. Powell,	23
Collegiate:	Farm Motors	Professor Humpherys,	6

Up to the present time this department has trained 523 soldiers in Vocational work.

2. Requirements for Instruction.—During the next two years, there will be a great development in all kinds of farm motors, including the stationary engine, the tractor, the truck, and automobile. There will also be considerable attention paid to new farm and road building machinery. Educational institutions should take an active part in the training of men to cope with the needs of this mechanical epoch. In view of this condition we will need the services of two more men to assist in the instruction.

3. Buildings.—The lecture and laboratory room at this time

is quite adequate. The new garage has supplied a great need and will afford splendid facilities for training men.

Respectfully submitted,

L. R. HUMPHERYS,

Associate Professor of Farm Mechanics.

DEPARTMENT OF FOODS

To the President of the College:

Sir: I have the honor to report herewith the Department of Foods for the last biennium.

1. The Foods Courses with instructor and enrollment for each course taught during the Fall Quarter are as follows:

Course	Enrollment	Instructor
Vocational.		
Foods a. Household Cookery	9	Beers
Senior.		
Foods 4. Dietetics and Nutrition	12	Whitacre
Conservation of Food—Not yet organized		Whitacre

Students having been registered for classes of the Fall Quarter only, enrollment for the courses of the Winter and Spring Quarters in which the work is concentrated, cannot be given. Winter and Spring Courses with instructors are:

Course	Quarter	Instructor
Vocataional.		
Foods c. Food Economics	Winter and Spring continuing from Fall.	———
Foods (b). Cafeteria Management and Practice.	Winter and Spring	Hunter
Junior.		
Foods (2). Food Economics	Winter continuing through Spring	Beers
Foods (1) Preparation of Foods and Food Supply	Spring	———

Senior.

Foods (5). Institutional Cookery Correlated with conduct of College Dining Hall.	Winter repeated in Spring	 Hunter
Foods 10. Foods for Sick and Convalescent Correlated with conduct of Diet Kitchen for S. A. T. C. Hospital.	Winter repeated in Spring	———— Whitacre

2. Provided the present scope of Departmental Work is continued including as it does both the above Catalog Courses and the four projects, namely:

(1) Diet Kitchen for S. A. T. C. Hospital.
(2) College Dining Room.
(3) Assistant supervision of College Practice House.
(4) Preparation of Bulletins.

efficient work in the Department will require:

(a) Teaching force.
  (1) Three full time experienced graduate instructors.
  (2) One Home Economics graduate assistant, to whom would be assigned much of the responsibility of the Diet Kitchen, as well as a minor share in class work.
  (3) A second capable, but not necessarily Home Economics trained person to share the work of the Diet Kitchen.
(b) Other assistance.
  (1) Part time services of a domestic assistant responsible for the routine work of cleaning and keeping in order offices and laboratories in the building.
  (2) Part time services of a laundress responsible for department laundry.

3. Probable equipment for effective departmental work:

(a) New:
  (1) Installation in Room 28 of permanent lockers for students uniforms, and of a mirror, postponed from current year.
  (2) Certain small additions to office equipment, including effective telephone connections to add to convenience and efficiency.

(b) Repairs:

(1) Room 25.

Replace desk covering with suitable material. The marble cracks when subjected to cooking temperatures, and has proven wholly unsuited as desk tops for laboratory work.

The electric hot plates for desk use are inadequately wired. The electric ovens are also unsatisfactory. Two new electric ovens are still awaiting connection. I consider this equipment needs the early attention of an expert.

(2) Room 17.

The gasoline gas furnished for laboratory purposes continues unsatisfactory, and is a serious detriment to efficient work.

The coal range much disfigured by its temporary transfer to the S. A. T. C. Mess Hall detracts seriously from the appearance of this laboratory. Provision for storage of perishable food is inadequate in size and character. I recommend that a well constructed draught cupboard replace the existing arrangement.

(3) Annual appropriation of:

One Hundred Dollars for equipment maintenance.
One third share in Departmental Library.
Five Hundred Dollars for publication of, say, two bulletins.

5. Changes in existing quarters which success of the work demands.

The existing storeroom is unsuitable for this purpose, owing to too high temperature, defective light, and absence of ventilation. I am prepared with suggestion for necessary alteration which would contribute to more economical conduct of the department.

5. Readjustments and developments.

(a) Revision, if necessary, of existing arrangements for running expenses of this department, a new method being now on trial.

(b) The addition of courses designated as "reconstruction courses," namely:

Conservation of Food.
Food for the sick and convalescent.
Food for the family, which in time will probably replace Foods (a).
Conduct of Diet Kitchen for S. A. T. C. Hospital,
must be regarded as important developments.

They are courses well designed to enable students pursuing them to contribute more effectively to that portion of reconstruction, and indeed it is a very large portion, dealing with the critical condition of world food supply and distribution and consumption, as well as with the relation between proper food supply and health in the home at all times. To the end that the Utah Agricultural College may contribute its full share to reconstruction, I believe that these courses should be emphasized equally in method of presentation as in publicity.

6. In my opinion the most important educational issue which our College and other similar and related institutions must face, is that one demanding creation, if it does not exist in the student mind, and nurture when once created, of a certain openness and alertness of mind toward affairs in human life and their interrelations; this, together with a sense on the part of each individual of responsibility for a certain portion of the world's work. There must be developed a definite personal idea that each has some particular contribution to make, a contribution no one else can make for him, and which he himself cannot neglect.

7. To meet this particular issue and at the same time to aid in effective departmental work and development of the Institution I consider nothing quite so important as the character of the personnel in charge. The Staff sufficiently large in number, must respect relationships of courses as set forth in the catalog, and maintain high standards for individual work. This Staff must be thoroughly trained, capable, conscientious, sincere.

Respectfully submitted,

JESSIE WHITACRE,

Professor of Foods.

DEPARTMENT OF GEOLOGY

To the President of the College:

Sir: I have the honor to report herewith the Department of Geology for the last biennium.

In answer to your request of November 4 regarding the needs of the Department of Geology, which should have been in your hands by November 15, I beg to say that this has been postponed pending the doing away with the hospital which will give us a chance to get into the Geology Department to check up on a number of things needed. As the rooms are not yet open, I wish to make a statement at this time which will probably be enlarged upon when a closer check can be made on the departmental material.

There were no students in geology in the S. A. T. C. One class in general geology began the work this year, but met only three times when school was dismissed on account of influenza conditions.

Regarding the work last year, two classes were conducted in general geology, one in geology 5, ground water, one in economic geology, and one in minerology. The exact number of students in each class I am unable to give you at this time as my roll books are in the desk in the hospital.

For teaching of the work required next year, the department should have one-half time of one assistant. The department should be supplied with two more museum cases, and glass placed in the one case already built. A low ceiling should be placed in the office room used, which was part of the old tower, and has a ceiling some twenty feet in height. Additional equipment should be purchased for illustrative work in ground water development. The total amount of money necessary to purchase the necessary supplies of the department for the next two years, is approximately $1200.00.

One additional room should be given to the department of geology, and if the room is sufficient to warrant it, I should be pleased to have the room joining the class room, now occupied by Professor Saxer for mathematics, turned into the geology department. This is provided a room for mathematics can be supplied elsewhere in the College.

Respectfully submitted,
WILLIAM PETERSON,
Acting Director, Extension Division.

DEPARTMENT OF HISTORY

To the President of the College:

Sir: I have the honor to report herewith the Department of History for the last biennium.

There are at present 266 S. A. T. C. and 56 civilian students enrolled in the department separated as follows in classes:

War Issues, 266 S. A. T. C. and 54 civilians.

History of England, 8 civilians.

History of Civilization—for vocational students—6 civilians.

Constitutional History of the U. S., 8 civilians.

War Issues is being conducted by the head of the department with Professors D. E. Robinson and Z. B. Wallin assisting. The course in the History of England, and the course in the History of Civilization is being conducted by Prof. Robinson; and the Constitutional History of the United States by the head of the department.

The course in War Issues will require the services of at least three other assistants on part time for the remainder of the present school year. Two teachers for the department will probably be sufficient for the remainder of the biennium.

In regard to new equipment for the department, I should like to call your attention to the fact that successful history teaching depends to a great extent on adequate library facilities. Several hundred dollars could be spent with profit on books.

Respectfully submitted,

F. D. DAINES.

DEPARTMENT OF HOUSEHOLD ADMINISTRATION

To the President of the College:

Sir: I have the honor to report herewith the Department of Household Administration for the past biennium:

1. The number of students enrolled in this Department,

1917-18, was three hundred and forty-two (342). The classes taught and their enrollment was as follows:

(2) Mothercraft	117	
Summer School	34	151
(4) Household Administration	44	
Summer School	7	51
(8) Family Life in the Home		71
(9) Human Efficiency		69
		342

The following courses now offered in this Department indicate the expansion of its scope and the importance of its special work. The number of students registered to date is 45.

Course	Quarter	Instructor
Vocational		
Household Administration,		
(a) Practical Housepeeking	Fall & Winter,	Miss Underwood
(b) Care of Human Life in the Home	Fall, Winter, and Spring,	Miss Underwood
(c) Institutional Management	Spring,	Miss Beers
(d) Art in the Home	Spring,	Miss Hunter
(e) Home Nursing and First Aid	Winter,	
(f) Practice Housekeeping		Prof. Ravenhill
(g) Health Principles in the Home	Winter,	Miss Underwood
(h) Modern Housekeeping	Winter,	Miss Underwood
Senior and Junior College		
(1) Household Management	Fall & Winter,	Miss Underwood
(1a) Household Budget	Spring,	Miss Beers
(2) Home Nursing and First Aid	Spring,	
(3) Practice Housekeeping		Prof. Ravenhill
(4) Factors in Human Efficiency	Fall & Winter,	Prof. Ravenhill
(5) Care of Child Life and Adolescence	Winter and Spring,	Prof. Ravenhill
(6) Institutional Administration	Spring,	Miss Hunter

Three Bulletins, bearing upon the work in the Department, have been published during the past year. Of these, the first deals with the place and organization of the College Practice House; the second on "Labor Saving Devices in the Home," was issued for the assistance of homemakers; the third on "Child Life, Its Development and Care," was prepared in response to the request of students and volunteer teachers, entrusted with the responsibility of pioneering the work of the Children's Year Program in this State.

2. The full time of two instructors is required to carry on the work of this Department, with the assistance of a trained nurse for the Courses in Home Nursing and First Aid in Emergencies—which at present are essential to the equipment of homemakers in this State.

3. (a). An annual appropriation of not less than $100.00 is necessary to keep the equipment up to date in respect of specimens of new labor saving devices for family use and of appliances suitable for domestic use designed and proved to safeguard the health or normal development of infants and young children. Such specimens reach a large outside public by means of visitors, as well as students. This in addition to the annual appropriation of $200.00 for running expenses.

(b) An annual appropriation of $500.00 for the preparation and cost of printing and circulating Bulletins desirable to support and extend the work of this department.

4. The erection and equipment of a Practice House for the use of Senior Students, planned if possible for the use also of Vocational Students. Provision to be made for the accommodation of from two to six resident children under the supervision of a specially trained woman—in order to complete the course of training in the Care of Children, by reproducing as nearly as possible the natural conditions of a family home. Cost of building $10,000.00. Cost of additional furnishing, $1000.00.

While all the work of this Department is framed to promote human welfare, it is especially important at this time to provide training in The Care of Children—in view of the national need emphasized in The Children's Year Campaign, and to emphasize the close connection between the standards of home life and national efficiency.

Respectfully submitted,
ALICE RAVENHILL,
Director of Home Economics.

DEPARTMENT OF HORTICULTURE

To the President of the College:

Sir: I have the honor to report herewith the Department of Horticulture for the last biennium.

In the early fall of 1916, Professor E. P. Taylor took up his work here as head of the Department. After remaining about one week he left to become Director of the Extension Division at Tucson, Arizona. Mr. W. E. Goodspeed, Instructor in Horticulture, remained in charge of the Department until about April 1, 1917, when he resigned. Mr. J. Edward Taylor was appointed to continue the work for the remainder of the school year, but his duties as Executive Secretary of the Food Production Committee required most of his time that spring.

On July 1, 1917, Mr. Tracy H. Abell, an M. S. graduate in Horticulture from the Oregon Agricultural College, and I took up our work here as Instructor and Professor of Horticulture, respectively.

On July 1, 1918, the separate departments of Horticulture and Campus and Greenhouses were combined, and Mr. Emil Hansen, in charge of the latter, was promoted to be assistant in Horticulture, while still remaining in direct charge, under the head of the Department, of the Campus and Greenhouse work.

Courses given and the registration and names of instructors for each course for the school years 1916-17, 1917-18, and 1918-19.

First Term, 1916-17.

Horticulture 1	7	W. E. Goodspeed
Horticulture 3a	6	W. E. Goodspeed
Horticulture 9	4	W. E. Goodspeed
Horticultural Research	1	W. E. Goodspeed
Winter Course	6	W. E. Goodspeed

Second Term, 1916-17.

Horticulture 2	11	W. E. Goodspeed and J. Edward Taylor
Horticulture 3b	4	"
Horticulture 8	3	"
Horticulture 9	6	"
Total	48	

Fall Term, 1917-18.

Horticulture 2	8	M. C. Merrill
Horticulture 5	6	T. H. Abell

Winter Term, 1917-18.

Horticulture 3	12	T. H. Abell
Horticulture 14	2	M. C. Merrill

Spring Term, 1917-18.

Horticulture 1	21	M. C. Merrill
Horticulture 4	7	T. H. Abell
Horticulture 10	13	T. H. Abell and Emil Hansen
Horticulture 12	3	M. C. Merrill
Total	72*	

*This total is exclusive of correspondence students in Horticulture.

Fall Term, 1918-19.

Horticulture a	1 Civilian	M. C. Merrill
Horticulture	3 Civilian	M. C. Merrill
Total	4	

The low registration this fall is accounted for by the war, the S. A. T. C. requirements, and the inuuenza epidemic. I am, therefore, instructing in Chemistry courses (Industrial Chemistry and Quantitative Analysis), and Mr. Abell is instructing in Mathematics courses.

The budget granted the Department of Horticulture for the fiscal year (July 1, 1917 to June 30, 1918) was $400.00. Of this amount, however, $69.18 had already been expended for labor during May and June, 1917, before I arrived at the College July 1. To offset this deficit in part, the President later (in February, 1918) granted an additional $50 to the department. Herewith is a statement of the expenditures and receipts for the fiscal year, July 1, 1917, to June 30, 1918:

Expenditures.		
Labor, including May and June, 1917	$225.13	
Office Equipment	89.81	
Office Supplies	12.25	
Laboratory equipment	38.00	
Laboratory supplies	9.42	
Garden and Orchard Equipment	13.62	
Garden and Orchard Supplies	16.55	
Express charges, telegrams, etc.	14.65	
Traveling Expenses	7.59	
Total expended by Department		$427.02
Additional miscellaneous items necessary to add to bring total up to correspond with Secretary's books		9.45
		$436.47
Receipts.		
Department sales, the funds of which go into the general college account		$ 69.40

The present staff of three will probably be sufficient for the next biennium. As soon as it is possible, however, a head gardner should be employed throughout the year. The growth of the outside work will make this annual position both necessary and profitable. From $900 to $1000 per annum will be required for this purpose. For the next two years, however, we are going to try to get along by hiring a gardener for nine months only each year. Part of his time, as in the past, will be used for the experimental work.

The needs of the Department of Horticulture, exclusive of the Campus and Greenhouse Division, for the next biennium beginning July 1, 1919, are estimated as follows:

For the outside:		
Gardener for 18 months at $75	$1350	
Other hired help	200	
Tools and machinery	100	
Plants, seeds, and express	50	
Miscellaneous supplies	50	
Total		$1750

For the inside:

Laboratory equipment	$ 500	
Laboratory supplies	100	
Books, magazines, and office supplies	50	
Miscellaneous materials, express, etc.,	25	
Total		$ 675

For needed land:

10-acre tract of land at $300	$3000.00	
Thief-proof fence for same	500.00	
Total		3500.00
Grand Total		$5925.00

Your attention is especially invited at this time to the urgent need of more land for experimental purposes. One of the things that impressed me on my visits to the western and northwestern agricultural colleges this summer was the vast acreage of splendid land near the institutions for experimental purposes. Before more time elapses and the difficulty of getting them increases, therefore, the College should purchase some of those splendid tracts in North Logan. They are admirably adapted to our purposes. The Department of Horticulture should have at least ten acres. It is hoped that we can secure the same in the near future.

Your attention is further invited to the fact that the horticultural sales from a suitable tract of land, in large measure, would reimburse the institution for the annual expenses.

Respectfully submitted,
M. C. MERRILL,
Professor of Horticulture.

DEPARTMENT OF IRRIGATION AND DRAINAGE

To the President of the College:

Sir: I have the honor to report herewith the Department of Irrigation and Drainage, for the past biennium:

1. (a) Number of students enrolled.
    1. Military mapping students whose induction paper are completed 177

2. Prospective S. A. T. C. students, that is, those whose induction papers are not yet completed 76
3. Civilian students 4

(b) Classes taught.

1. Military mapping 153
2. Irrigation practice 4

(c) Name of Instructors.

Military mapping
  (1) Map reading division, Prof. O. W. Israelsen.
  (2) Map sketching division, Prof. J. S. Powell.
  (3) Military sketching, Prof. Calvin Fletcher.
Irrigation practice, Prof. George Stewart.

Of the eight Lieutenants listed below, the Military Department has ordered that seven assist in the mapping course, provided that special instruction be given the Lieutenants as necessity demands.

James M. Christensen,
Fred A. Finch,
Gethin T. Fowler,
Thomas E. Leavey,
Glen L. Miller,
Clyde A. Romney,
George C. Wareing,
Donald H. Wright.

2. (a) Probable teaching force. It is likely that the present teaching force in the Irrigation and Drainage Department can handle the teaching during the next two years, provided Prof. Ray B. West will be able to continue to give the courses in Hydraulics and Irrigation Engineering. If, however, Prof. West's time is fully taken in other fields, this Department is very likely to need one additional man beginning at the opening of the school year 1919-1920.

(b) Other assistance needed. It is likely that the Department will need the assistance of a trained mechanic for a short time in order to install weirs and other devices properly in the proposed water measurement laboratory.

3. (a) New Equipment Needed. Attention is again called to the urgent need of a water measurement laboratory which has been pointed out in every report made by this Department during the past few years. A detailed description of the laboratory needed was submitted in the biennial report of the Board of Trustees for the year 1915-16. Additional needs have been mentioned in letters, drawings and reports submitted at later dates. Slight

modifications of the equipment are found desirable as more work is done on the plans for the laboratory; important among which is an enlargement of the proposed supply reservoir as indicated in pencil on blue print submitted herewith. It will be remembered that the needs for the proposed laboratory as outlined on September 25th, were estimated at $7,500. The estimate is considered the minimum upon which a good beginning of the laboratory can be made, and it is now believed that with the increase in size of the reservoir proposed, and also the addition of several new water measurement devices, that the Institution should provide at least $10,000 for the installation of this laboratory. It has been pointed out heretofore that the need for the water measurement laboratory is so urgent that it is not likely to be over-emphasized. Because of the unusually rapid irrigation development which is sure to come during the next few years under Government supervision, it is urgently recommended that adequate provision be made for strengthening the instruction in irrigation in this way. Secretary Lane very properly called attention, in a recent letter to President Wilson, to the fact that development of the West can be made successful and permanent only as fast as "security is made to replace speculation." That speculation has been the basis of water measurement on a very large majority of western farms up to the present time is obvious to all who are acquainted with western agricultural development.

(b) The needs of the Department concerning a Soil-and-Water-Relations Laboratory, a Materials Laboratory and also a Small-Structures Demonstration Laboratory, as pointed out in the report of September 25th, are outlined below.

"**Soil-and-Water-Relations Laboratory.**—It is highly desirable that laboratory facilities for studying the capacities of soils to hold water, the rate of movement of water through soils, and allied problems, be provided as soon as the Irrigation building now under construction becomes available for department use. Such a laboratory could be provided to meet the needs of 24 students for the very small sum of $250.00. It is needed especially for Junior College students.

"**Materials Laboratory.**—For Senior College students, a laboratory giving special preparation to students in the selection and handling of materials used in the construction of canals in earth and earth dams, is very much needed. Materials and forms used in lining canals and in making drain tile would properly form a part of this laboratory, to the development of which a beginning should be made during the next two years, by providing $200.00.

"**Small-Structures Demonstration Laboratory.**—For the special needs of the farms of the State, a demonstration laboratory containing full size samples of small headqates, flumes, underground pipe and over head spray distributing systems, forms for irrigation pipe and drain tile making, samples of tile, and drainage excavating and tile laying equipment should be provided at the earliest date possible. A beginning toward such a laboratory was made more than a year ago, by inviting various companies which manufacture or sell irrigation and drainage equipment to place samples of their products at the College for educational purposes. A smll fund, not to exceed $200, should be set aside to purchase such equipment as cannot be obtained by the method above described."

4. Suggestions Bearing on the College Work. To obtain information which will contribute to the solution of Utah's agricultural problems and the other problems above suggested, it would seem that more fundamental research in rural institutions should be conducted by the College. Just how this might best be handled is somewhat difficult to say. Possibly an extensive cooperative project among the several departments interested might be feasible. It would seem desirable to stimulate this type of research through co-operation of the various departments of the School of Commerce and particularly with those departments in the Schools of Agriculture and Agricultural Engineering which are interested in these problems. The difficulty of centralizing responsibility under this method of conducting research is recognized and it may be more feasible to establish a Department of Rural Institutions, such as has been done by the University of California, College of Agriculture. In any event, it is believed that the Institution has a real opportunity to conduct original research in this field.

In talking to the American Society of Agricultural Engineers concerning "Engineering Work in Food Supply," F. H. Newell recently said: "The land problem always has been and still is the greatest fundamental question of national life. * * * * The growth or decay of civilizations has been so closely tied up with the land question that it a matter of marvel that our nation has not more carefully studied and worked out the fundamental condition for success. * * * * We are now face to face, not only with the great crisis of our war and of the production of food, but accompanying this and rapidly growing more acute is the equally important and difficult land question—one which will become more pressing upon the declaration of peace."

Careful consideration of the significance of the land problem, which broadly speaking includes the water problem in Utah, convinces one beyond doubt that upon its very careful analysis depends in large measure the maintenance of a permanent agriculture and the perpetuation of true democracy. Further, such consideration forces one to agree with Secretary Lane, when in writing to President Wilson concerning the urgent need of conducting painstaking investigation upon which to base forthcoming reclamation and colonization, he said: "This work should not be postponed."

Respectfully submitted,
O. W. ISRAELSEN,
Associate Professor of
Irrigation and Drainage.

MATHEMATICS

To the President of the College:

Sir: I have the honor to report herewith the Department of Mathematics for the past biennium.

During the year 1917-18 there were 110 students enrolled in the department as follows:

Mathematics (a) (Algebra)	10	Prof. Humphreys
Mathematics (b) Plane Geom.)	13	Mr. Geo. Hansen
Mathematics (w) (Winter Course)	30	Prof. Saxer
Mathematics (2) (Elem. Analysis	10	Prof. Saxer
Mathematics (4) (Solid Geom.)	6	Prof. Saxer
Mathematics (5) (College Algebra)	18	Prof. Saxer
Mathematics (6) (Trigonometry)	20	Prof. Saxer
Mathematics (7) (Calculus)	3	Prof. Saxer

During the present year there have been registered in the Department 90 students as follows:

	S.A.T.C.	Civilian	
Mathematics 2 (Trigonometry)	68	12	Prof. Saxer
Mathematics b (Plane Geom.)	4	8	Mr. Abell

During the year 1917-18 the writer served as acting Director of the School of Home Economics and also as Chairman of the Committee on Graduation. During the present year the writer is assisting the Department of Physics by teaching the class of Telephone Electricians in the Vocational Section of the S. A. T. C.

The teaching force for the next biennium should include a Head of the Department, and one instructor on half time.

The usual annual appropriation of $25.00 should cover the Departmental expense account.

Respectfully submitted,
A. H. SAXER,
Professor of Mathematics.

DEPARTMENT OF FORGING

To the President of the College:

Sir: I have the honor to report herewith the Department of Forging for the last biennium.

For the present assignment of soldiers the Forging Department prepared for seventy students, forty blacksmiths, ten horseshoers and twenty wagoners, but we have received only twenty-seven men so far. They are all S. A. T. C. students and are assigned to blacksmithing. I am conducting the classes assisted by Mr. Hyrum A. Campbell and four soldiers.

The Forging Department should have a permanent assistant. I find it rather difficult to attend to all the work with only occasional student help.

I would suggest that horseshoeing be given more consideration in the future than it has had in the past. We have the forges and other equipment for horseshoeing, but no building. We have been using the foundry and carriage shop temporarily for this work. A small building that could be used exclusively for a horseshoeing shop is needed.

The carriage shop, foundry, and part of the blacksmith shop have suffered for twelve years from lack of heat. There have been continual promises made to remedy this condition, but nothing permanent has been done. Proper heat in these places would be a decided improvement.

Respectfully submitted,
AARON NEWEY,
Associate Professor of Forging.

MACHINE WORK

To the President of the College:

Sir: I have the honor to report herewith the Department of Machine Work the past biennium as called for:

CLASSES OF 1917-18

First Quarter

T. of M. A., 2 (Mechanism)	1
T. of M. A., 3 (Automobiles)	10
Machine and Auto Work, 1	10
Machine and Auto Work, 6	1
Machine and Auto Work, c	6
Total	28

Second Quarter

T. of M. A., 3 (Automobiles)	48
Machine and Auto Work, 1	23
Machine and Auto Work, 2	11
Machine and Auto Work, 4	2
Machine and Auto Work, c	6
Special Auto and Tractor Course	39
Total	129

Third Quarter

T. of M. A., 3 (Registered but no class organized)	4
T. of M. A., 8 (Aviation)	14
Machine Work, 1	2
Machine Work, 3	4
(Military) Machine Work	5
(Military) Auto Repair	4
Total	29

The class room work was done by E. P. Pulley, who also conducted the shop work with the assistance of H. A. Berntson and A. H. Powell through the second quarter. There was no assistance for the work of the first and third quarters.

The work of this department continued through the summer in preparing S. A. T. C. men for government service.

There were twenty men assigned for machine work in the first section, thirty in the second and there are now thirty in the third which is all the equipment will accommodate at one time.

H. A. Berntson and Glenn Spillman assisted with the first section, Glenn Spillman and P. F. Barker with the second and third.

One full time instructor and another for the winter quarter will likely be sufficient to handle the teaching work fairly well.

There is room in the present shop for two or three more machines. We we could use to good advantage another lathe at least.

Respectfully submitted,
E. P. PULLEY
Assistant Professor of Machine and Auto Work.

DEPARTMENT OF WOODWORK AND HOUSEBUILDING

To the President of the College:

Sir: I have the honor to report herewith the Department of Woodwork and Housebuilding for the past biennium.

1. During the summer months we have trained 100 soldiers. At the present time we have enrolled 23 civilians and one S. A. T. C. member. On account of the quarantine no classwork is going on at present.

2. As to the teaching force, the requirement of the Government ought to be standard: One instructor and two assistants for thirty students.

3. **Equipment.**—We were in need of a tennoning machine twenty years ago; we have been promised such a machine.

The stockroom should be more adequately heated.

Various tools of standard and up-to-date models would complete our equipment and add dignity to our department.

Some of our machines should be replaced by later models. Some of the high schools of the State are ahead of us in this respect.

4. **More Room.**—Our Machine Room was taken last spring. with the promise of another in the near future. Our room for finished products has also been taken. We never have had a finishing room, and it is needless to say that we cannot properly finish anything without such a room.

5. **Reconstruction.**—Much depends on the action of the Government. Our view point today will change tomorrow. One thing will help us—a variety of good materials on hand, by way of supplies.

6. Besides the $2000 for supplies asked for in previous report, we can use to good advantage $1000 for equipment.

Respectfully submitted,
A. J. HANSEN.
Associate Professor of Woodwork and Housebuilding.

DEPARTMENT OF MECHANICAL DRAWING

To the President of the College:

Sir: I have the honor to report herewith the Department of Mechanical Drawing for the past biennium.

The growth of the Department of Mechanical Drawing during the last two years has been phenomenal. The war has emphasized the need of draftsmen for both industrial and war work. There will be even a greater demand for men who can draw and plan after the war.

The enrollment for the year 1916-17 averaged about thirty students throughout the year. Classes were held two hours daily. During the present year we have a class of twenty men in Topographical Drafting in the vocational sectionof the S. A. T. C. which meet six hours daily. Five collegiate S. A. T. C. students and three civilian students are enrolled in Mechanical Drawing during the fall term.

The financial needs of the Department of Mechanical Drawing for the biennium beginning July 1, 1919, are as follows:

Equipment:	
Drawing boards, Instruments, Tables, etc.	$300.00
Supplies:	
Blue Print paper, Tracing cloth paper, etc.	100.00
	$400.00

Respectfully submitted,
J. S. POWELL.

MODERN LANGUAGES

To the President of the College:

Sir: I have the honor to report herewith the Department of Modern Languages for the past biennium.

War conditions have made the work in German almost disappear, while that in French has nearly tripled. At present the classes are as follows:

Military French, S. A. T. C.	219
French I, College	36
French II, College	10
French III, College	11
Spanish I	7
Correspondence	7

There is a very active French Club maintained by the students of the department with an attendance of from 20 to 80.

The unusually large sections of Military French have necessitated the employment of an assistant instructor on part time, Mr. George C. Jensen.

Besides his regular work in the department the head of the department is giving much time to College publicity and in connection with the College Extension work has charge of the Community Service Bureau and helps in the editing of the Farm Bureau papers which are issued by the County Agents all over the State.

Respectfully submitted,
FRANK R. ARNOLD,
Department of Modern Languages.

DEPARTMENT OF MUSIC

To the President of the College:

Sir: I have the honor to report herewith the Department of Music for the past biennium.

In the Department the following courses are being offered regular students:

(In Theory)
1-5 Music I, II, III, IV, V;—includes History, Harmony, Counterpoint.

6. Public School Music—includes Supervision, Class room demonstration.

(In Vocal)

7. Choir.
8. Glee Club.

(On Instruments)

9. Orchestra.
10. Band.

The foregoing courses are announced for 1918-19 and are practically (with one substitution) the same as the past four years.

At present we are occupying small and unsuitable rooms in the Main Building; for years we have asked for quarters, larger and better adapted to our needs and do sincerely hope we may soon get them.

We require four medium class (teaching) rooms, and two larger assembly rooms for practice of choir, and other vocal work, and for band and orchestra drill. These should be located that they may be used at all times, day or evening, without interfering with the class work of any other department.

Our equipment is being added to and is at present adequate.

Respectfully submitted,
G. W. THATCHER,
Professor of Music.

DEPARTMENT OF PHYSICS

To the President of the College:

Sir: I have the honor to report herewith the Department of Physics for the past biennium.

Because of the heavy registration, particularly in the vocational section of the S. A. T. C., Mr. Edlef Edlefsen, Dr. Willard Gardner, James Christensen, and Mr. Woolf were employed. Dr. Saxer of the Department of Mathematics is giving the lectures on the telephone work. All the other lecture work is given by Professor Frank West.

The Physics Department is doing research work for the Experiment Station, the results of the investigations of the last two years being included in bulletins 151 on "The Freezing of

Fruit Buds" and 161 on "Orchard Heating", both by West and Edlefsen.

Because of the duties of the head of the department in connection with the schedule committee, athletic board, and school of general science, in addition to the above mentioned research work and large amount of teaching, more teaching assistance should be provided. Six hundred dollars, the amount set aside this year, will be required for supplies and equipment adequately to carry on the work next year.

The improvements in the laboratories and in equipment for the training of the S. A. T. C. men, both collegiate and vocational, were of permanent character and this fact considered with the emphasis the government has placed on the subject of physics, makes the prospects for the department look very bright.

Respectfully submitted,
FRANKLIN L. WEST,
Professor of Physics.

DEPARTMENT OF TEXTILES AND CLOTHING

To the President of the College:

Sir: I have the honor to report herewith the Department o Textiles and Clothing for the past biennium.

1. The total number of students enrolled in this department 1917-18 was 202. The classes taught and their enrollment was as follows:

c. El. Dressmaking	12
d. El. Dressmaking	
1. Art Needlework	
2. Art Needlework	12
3. Advanced Dressmaking	34
4. El. Millinery	5
7. Textiles	18
9. Survey	15
10. Full time Dressmaking	45
11. Costume Design	3
Summer School	18
	202

The following courses are now being offered by the Department:

Course	Quarter	Instructor
Vocational		
Textiles and Clothing:		
(a) Household Textiles and Sewing,	Winter,	Miss Skidmore
(b) Household Textiles and Sewing,	Fall,	Miss Moen
(c) Elementary Dressmaking	Winter and Spring,	Miss Moen
Junior		
Textiles and Clothing:		
(1a) Review of Technique, Practical Problems,	Fall,	Miss Richardson and Miss Skidmore
(1b) Dressmaking,	Winter,	Miss Richardson and Miss Skidmore
(2a) Textiles Fabrics,	Fall,	Miss Moen
(2b) Selection of ready-made Clothing,	Winter,	Miss Beers
(2c) Chemistry of Textiles,	Spring,	Prof. Greaves
(3) Milliner,	Fall, Winter and Spring,	Miss Richardson
(4) Handwork and Weaving,	Fall, Winter and Spring,	Miss Moen
Senior College		
(5a) History of Costume,	Fall	Prof. Fletcher
(5b) Costume Design,	Winter,	Prof. Fletcher
(6) Advanced Dressmaking,	Winter and Spring,	Miss Moen
(7) Survey of Teaching Textiles and Clothing,	Spring,	

2. At least three whole time teachers are required in this Department during the next biennium. Owing to the increased demand for Extension Work in Textiles and Clothing, it is found necessary to have one teacher who can devote her entire time to that work. At present, Miss Skidmore divides her time between the Extension Division work and Departmental teaching, an arrangement not satisfactory in either case.

3. During the past year valuable equipment has been added to the department, including a Barbour loom, glazed show cases, new sewing machines, with an electric motor, dress forms, etc. A variety of samples have also been purchased for use in the classes on Textile Fabrics, and in the selection of ready to wear

clothing and household furnishings. As more emphasis must be placed upon these courses in the future, an annual appropriation of $100.00 for the purchase of additional materials and equipment is really essential, in addition to the annual appropriation for running expenses $200.00. Also one-third share of the annual appropriation for departmental library and an annual appropriation for the preparation, cost of printing and circulating of one or more bulletins, which should constitute an important part of the work of this department, $500.00.

4. The present quarters are considerably crowded owing to the fact that one of the large laboratories has been converted into a lecture room.

5. The readjustment of the Textiles and Clothing courses designed to meet war conditions prove equally as well adapted to the important reconstruction period upon which we are now entering. The courses described as Textiles and Cloth. (2a) (2b) and (2c) are planned to arouse in students a sense of their responsibility as consumers and thus to prevent the wastefulness of pre-war conditions. No student should be allowed to Major in Textiles and Clothing without these courses.

The Vocational Courses have also been rearranged in order to meet more completely the needs of the home maker and mature student who can spend but a short time at the College. In them, theory and practice are now combined as to promote really intelligent results.

Respectfully submitted,
JOHANNA MOEN,
In Charge of Department.

DEPARTMENT OF VETERINARY SCIENCE

To the President of the College:

Sir: I have the honor to report herewith the Department of Veterinary Science for the past biennium.

1. There are enrolled in this department at the present time 10 civilian and 7 S. A. T. C. students. There are three classes conducted: Veterinary Science 1 with 8 students; Veterinary Science 8 with 9 students; and Veterinary Science 5 with 7 students. I am conducting all of the classes as in previous years.

2. Unless we have an unlooked for attendance we will not

need extra teaching help this year. Outside of the courses in veterinary science, this department offers enough work to qualify a student to get one year's credit in a regular veterinary school. All the courses outlined in the catalog will be given if there are enough to justify it. Should we have a large number of students in the different courses next year, we should have some assistance. I am occasionally called out by the Extension Division and at such times we need some one to look after class work.

3. We are in need of filing cabinets, museum material, and more veterinary apparatus.

4. As you know, a veterinary hospital is one of the needs of the Institution. Owing to the removal of the old building that was used for this purpose we now have temporary quarters at the sheep barn. We need a permanent veterinary hospital both for our own animals and for laboratory purposes in our class work.

5. The College has grown to considerable proportions and daily there is much garbage collected. This is now hauled out to a dump ground near the center of the farm joining the cattle pastures. Some of this waste has rolled into the pastures causing trouble among the live stock. I believe a crematory should be constructed so that all garbage as well as dead animals and used dissecting material could be properly done away with. This would aid in keeping sanitary surroundings on the campus, as well as being a great convenience for the different departments of the Institution.

Respectfully submitted,

H. J. FREDERICK,

Veterinarian.

COLLEGE LIBRARY

To the President of the College:

Sir: I have the honor to report herewith the library for the past piennium. The following is a summary of the library accessions beginning November 1, 1916 and ending October 30, 1918.

LIBRARY ACCESSIONS—Statistical

Books purchased	1090	
Books by gift	245	
Books deposited by U. S. Government	373	
Total books		1708
Pomphlets purchased	25	
Pamplets by gift	3621	
Pamphlets U. S. Government	1500	
Total pamphlets		5146
Total addition to library		7454

PRESENT STRENGTH OF LIBRARY

Books	32133	
Pamphlets (estimated)	41894	
Total		74027

To do more effective and better work we need an appropriation of about $500.00 for equipment.

Our Library is growing so rapidly that the present quarters are not adequate and a new separate Library Building is almost a necessity.

Library work should be one of the most important of Public Utilities and to accomplish this we must have efficient help and means to purchase all the best books pertaining to important and up to date subjects.

Respectfully submitted,
HATTIE SMITH,
Acting Librarian.

VOCATIONAL DIVISION, S. A. T. C.

To the President of the College:

Sir: I have the honor to report herewith the Department of Vocational Division, S. A. T. C., for the past biennium.

At the request of the War Department at Washington, the College in May entered into contract with the Government to train mechanics and technicians for the army. To accommodate the number contracted for, some adjustments in our building were necessary; the wood working machine room was moved from the South wing of the Mechanic Arts Building to the main central room and all of our farm machinery stored to give additional space, in the North wing. What formerly was the College Cafeteria, was changed into the soldier mess hall, and as our number increased it was also enlarged to meet the demand. Much of the success of the soldier training work is due to the efficient work of Mr. O. W. Cooley, who has had charge of the mess hall.

Our first assignment of June 15 came from Wyoming and was as follows:

Chauffeurs	20
Auto Mechanics	100
Rough Carpenters	40
Blacksmiths	40
Machinists	20
Concrete Workers	40
Radio Operators	20
Total	280 Men

The men were to be trained in eight weeks.

Some permanent improvements to the campus were made by these men, the fact being impressed upon us that the army wanted men who could really do the work. Our work was accordingly of a very practical nature. The carpenters built for the Horticultural Department a frame building for drying and evaporating fruit; two portable garages and the new automobile repair shop; in addition to the usual time spent at the bench upon the fundamentals. The concrete workers made the steps in front of the gymnasium, the concrete work on the new granary and the walks in front of the Live Stock Building, in addition to many other small pieces of construction.

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For the second assignment of August 15 we were asked to take an additional number of men as follows:

Blacksmiths	50
Woodworkers	60
Machinists	30
Auto Mechanics	180
Chauffeurs	20
Concrete Workers	40
Radio Operators	40
Total	420

In addition to 28 soldiers retained to aid in instruction.

These men came from California and Nebraska; about 300 from the former State and 120 from the latter. The men aided in the completion of the auto repair shed and granary; aided in remodeling the building for the new Post Exchange, guard room, quartermaster's quarters, hospital, and in the construction of the new Barracks Building. This was an exceptionally fine body of men, and left the school well equipped to aid the Government as mechanics.

Although our second contract was 50 percent larger than our first, we were again asked to increase the number of our third contract, this time nearly doubling our second contract. First contract 280, second 420, third 700, as follows:

Auto Mechanics	200
Machinists	30
Blacksmiths	40
Horseshoers	10
Wagoners	20
Chauffeurs	20
Surveyors	20
Draftsmen	20
Radio Operators	40
Concrete Workers	20
Telephone Electricians	300
Total	700

This classes us among the largest vocational training camps of the country. It is probably some indication of the fact that our work was reasonably well done to note that the District Director said he could contract with us for all the men we could possibly accommodate.

The soldier training work has demonstrated the fact that a great deal more can be accomplished in the short space of eight weeks than we had any idea of before. The intensive work since June has given quite a stimulus to all departments and made a brighter and broader outlook for the future. Our more adequate equipment now gives us better opportunity to serve the many students of the State who are interested in the lines of Engineering and Mechanic Arts that we offer. Last winter our shops were not able to handle satisfactorily all who came in for the work.

In closing will say that it gives me some satisfaction to note that in the emergency we were able to adjust ourselves readily to the demands of the War Department and accomplish for them some real service.

Respectfully submitted,
RAY B. WEST,
Director, Vocational Section
Students' Army Traing Corps.

COLLEGIATE SECTION

STUDENTS' ARMY TRAINING CORPS

To the President of the College:

Sir: I have the honor to report herewith the Department of the Collegiate Section of the Students' Army Training Corps for the past biennium.

The war has caused to be developed many new practices not only in business and industry, but also in education. Not the least of these innovations is the establishment of units of the Students' Army Training Corps in several hundred American universities and colleges. The purpose of establishing this work is briefly explained in the following paragraph written by the Committee on Education and Special Training of the War Department:

"The fundamental principle upon which this Corps is established is that it will hasten the mobilization and training of our armies, with particular reference to the selection and training of officer and non-commissioned officer material,—by bringing men into training earlier than would be the case if they waited for their call under the elective Service Law. In order to accomplish this purpose, the colleges have undertaken to use their organization and facilities for giving intensive training aimed directly at preparing students for admission to officers' and non-commissioned officers' training camps and expert technical war work."

Men who had the necessary preparation to carry on college work were inducted into the institution and, in addition to the courses prescribed for special war work, were allowed to elect other subjects taken from the regular college curriculum.

Instruction to S. A. T. C. men has been given in the following subjects:

Accounting 1-a
Accounting 9
Agronomy 2
Animal Husbandry
Bacteriology 1
Bacteriology 5
Chemistry 1-a
Chemistry 4
Chemistry 8
Economics 1
Economics 2
Elocution 4
English 7
Farm Motors
French 1
French 2
Mapping
Mathematics 2
Mechanical Drawing
Military Hygiene
Military Law
Music 2
Music 3
Office Training
Personnel
Political Science
Physics 1
Physics 2
Sanitation 8
Stenography b
Surveying 1
Typewriting
Veterinary Science
War Issues
Woodwork

The contagion of Spanish Influenza that swept the country retarded somewhat the starting of the work, but the interference was probably not so serious as it was in the case of civilian students.

The total number of students enrolled in the Collegiate Section up to date is 363. Of these a number have been transferred to Officers' Training camps or assigned to other duties.

Under the coöperative arrangement with the War Department the men are furnished uniforms, board, and quarters and in addition are given the pay of privates. Instructors in military work are furnished by the War Department and those in the technical subjects are furnished by the College.

Respectfully submitted,

F. S. HARRIS,

Director, Collegiate Section,
Students' Army Training Corps.

DEPARTMENT OF ZOOLOGY AND ENTOMOLOGY

To the President of the College:

Sir: I have the honor to report herewith the Department of Zoology and Entomology for the past biennium.

The following table is a synopsis of the courses offered by the Zoology and Entomology Department for each of the three quarters of the year 1918-1919. The very short time that school was in session before the influenza quarantine was hardly sufficient to give any assurance as to what courses would actually be called for and given. The figures under the enrollment heading state the actual number of enrollment cards received from the registrar. Inquiries received, and interviews had with more advanced students who had not completely arranged their courses for final registration give some evidence that registration in this department would have shown up to greater advantage had the untimely quarantine referred to not been necessary.

Class Work, 1918-1919

Fall Quarter

Course	Credits	Instructor	Enrollment
Entomology 2	3	W. W. Henderson	....
Entomology 4	3	W. W. Henderson	....
Entomology 5	arranged	W. W. Henderson & H. R. Hagan	....
Zoology 1	3	W. W. Henderson	35
Zoology 10	arranged	Henderson, Hagan, Sorenson	....

Course		Credits	Instructor	Enrollment
Entomology	3	3	H. R. Hagan	----
Zoology	2	3	C. J. Sorenson	7
Zoology	5	5	C. J. Sorenson	2
Zoology	6	5	C. J. Sorenson	----
Zoology	9	4	H. R. Hagan	1(3?)
			Winter Quarter	
Entomology	1	5	H. R. Hagan	----
Entomology	2	3	W. W. Henderson	----
Entomology	3	3	W. W. Henderson	----
Entomology	4	3	W. W. Henderson	----
Entomology	5	arranged	W. W. Henderson & Hagan	----
Zoology	1	3	W. W. Henderson	35
Zoology	2	3	C. J. Sorenson	7
Zoology	3	5	C. J. Sorenson	3
Zoology	6	5	C. J. Sorenson	----
Zoology	7	5	W. W. Henderson	----
Zoology	9	4	H. R. Hagan	1(3?)
Zoology	10	arranged	W. W. Henderson, Hagan and Sorenson	----
			Spring Quarter	
Entomology	2	3	W. W. Henderson	
Entomology	3	3	H. R. Hagan	
Entomology	4	3	W. W. Henderson	
Entomology	5	arranged	W. W. Henderson and Hagan	
Zoology	2	3	C. J. Sorenson	
Zoology	3	5	C. J. Sorenson	
Zoology	4	5	C. J. Sorenson	
Zoology	8	5	W. W. Henderson	
Zoology	9	4	H. R. Hagan	
Zoology	10	arranged	W. W. Henderson, Hagan, Sorenson	

No S. A. T. C. classes are taught in the department. Professor Hagan has had charge of S. A. T. C. inductions and is now manager of the Post Exchange.

The present teaching force will probably be sufficient for carrying on the work of the department for the next biennium. If a greater demand should be made for the courses of the department than is now anticipated it is likely that such demands may be met without increasing the force of instruction except for the provision of laboratory assistance which may be had at low cost. Advanced students serve admirably in this connection.

The connection of this department with the Experiment Station makes it possible for the instructional force to adapt itself readily to conditions like the present. During times of very heavy registration, instructors give a large amount of time to the work of instruction. During times like the present, where registration is low, instructors can apply themselves more constantly and less interruptedly to their researches in connection with experimental projects.

New equipment and repairs necessary to do effective work are included in a report made to the President's office under date of September 25, 1918.

The list mentioned does not take into account the pressing need of the department for more books and periodicals. In previous reports, attention has been called to the fact that library facilities in connection with the department of Zoology and Entomology are rather low. In order to keep the instruction of the teachers and the reading of the students up to date we need funds for acquiring valuable publications which we do not now possess and for constantly adding such new publications as come from the press. I wish at this time to emphasize the necessity of buying more books. Five hundred dollars could immediately be spent to great advantage in this direction.

We regret the necessity of having had to vacate one of our lecture rooms to accommodate the Extension Division, although we concur in the belief that it was no doubt necessary in the present emergency. We hope that the present occupation of this room is only temporary and that the use of it will presently be restored to the department. One lecture room will not accommodate all of our classes. Until the room in question is restored, it will be necessary for us to use laboratories for lecture rooms.

Very respectfully,

W. W. HENDERSON,

Head of the Department of Zoology and Entomology.

REPORT OF THE REGISTRAR

To the President of the College:

Sir: I have the honor to submit herewith the report of the Registrar:

Up to and including November 15, 1918, the registration for the present biennium is as follows:

Regular registration, 1916-1917		914
Summer School, 1916		256
Correspondence		613
Farmers' Conventions:		
Logan	250	
Ogden	116	
Salina	126	
Cedar City	121	613
Housekeepers' Conference:		
Logan	130	
Ogden	35	
Salina	125	
Cedar City	151	441
Total		2837
Less names repeated		82
		2755
Regular registration, 1917-1918		837
Summer School, 1917		196
Correspondence and Extension Classes		1247
Farmers' Conventions:		
Logan	291	
Richfield	81	
Cedar City	209	581
Housekeepers' Conference:		
Logan	107	
Richfield	52	
Cedar City	220	379
Total		3240
Less names repeated		66
Total		3174

Regular Registration, 1918-19 (to November 15, 1918)	991
Summer School, 1918	232
Correspondence and Extension Classes	1434
U. A. C. United States Soldiers' Training Detachment, (Wyoming)	277
U. A. C. United States Soldiers' Training Detachment, (California and Nebraska)	425
Total	3359

REGISTRAR'S REPORT OF ATTENDANCE BY SCHOOLS FOR THE YEAR 1916-1917 TO JUNE 5, 1917.

COLLEGE

	Agriculture (Men)	Agricultural Engineering (Men)	Commerce (Men)	Commerce (Women)	General Science (Men)	General Science (Women)	Home Economics (Women)	Mechanic Arts (Men)	Total	Grand Total
Graduates	12	1	1	1	7	1	5	1	29	
Seniors	29	6	6	..	10	2	14	3	70	
Juniors	21	6	6	1	11	3	18	2	68	
Sophomores	29	11	16	3	22	10	37	2	130	
Freshmen	62	16	19	5	14	10	51	6	183	
Specials	50	20	16	5	19	13	56	8	187	
Total	203	60	64	15	83	39	181	22		667

VOCATIONAL

	Agriculture (Men)	Agricultural Engineering (Men)	Commerce (Men)	Commerce (Women)	General Science (Men)	General Science (Women)	Home Economics (Women)	Mechanic Arts (Men)	Total	Grand Total
Practical	6	1	13	16	3	7	....	4	50	
Specials	3	5	2	9	....	....	24	2	45	
Winter Course	56	12	8	2	....	....	3	71	152	
Total	65	18	23	27	3	7	27	77		247

Summer School, 1916	256
Correspondence Department	613
Total	1783
Less names repeated	82
Net Total	1701

Farmers' Conventions and Housekeepers' Conferences

Conventions:	
Logan	250
Ogden	116
Salina	126
Cedar City	121
Housekeepers' Conferences:	
Logan	130
Ogden	35
Salina	125
Cedar City	151
Net Total	1054

REGISTRAR'S REPORT OF ATTENDANCE BY SCHOOLS FOR THE YEAR 1917-18 TO JUNE 4, 1918.

COLLEGE

	Agriculture (Men)	Agri. Eng. (Men)	Commerce (Men)	Commerce (Women)	Gen. Sci. (Men)	Gen. Sci. (Women)	Home Ec (Women)	Mec. Arts (Men)	Mec. Arts (Women)	Total	Grand Total
Graduates	2	----	2	----	4	----	----	----	----	8	
Seniors	18	8	3	----	10	1	20	1	----	61	
Juniors	12	1	9	----	4	5	25	1	----	57	
Sophomores	20	6	11	2	1	7	22	----	----	69	
Freshmen	37	24	25	10	16	8	43	3	----	166	
Specials	32	30	20	9	6	8	30	1	1	137	
Total	121	69	70	21	41	29	140	6	1		498
VOCATIONAL	48	131	25	55	3	2	53	22	----		393
Total	169	200	95	76	44	31	193	28	1		837

Summer School, 1917		
Males	45	
Females	151	196
Correspondence and Extension		
Males	201	
Femlaes	1046	1247
		2280
Less names repeated		66
Net Total		2214

Farmers' Conventions and Housekeepers' Conferences

Conventions:		
Logan	291	
Richfield	81	
Cedar City	209	
Housekeepers' Conferences:		
Logan	107	
Richfield	52	
Cedar City	220	
Net Total		960

The College was obliged by order of the State Board of Health occasioned by the prevalence of Spanish Influenza, to discontinue on October 10 the instruction work for civilian students at the College. The work of the Students' Army Training Corps has gone on without interruption, although there have been readjustments in courses due to the emergency.

The enrollment on November 15, 1918, counting those who had registered for civilian work, was as follows:

S. A. T. C.		
Collegiate	363	
Vocational	394	
		757
CIVILIAN		
Collegiate Men	33	
Collegiate Women	120	
Vocational Men	49	
Vocational Women	52	
		1011

We submit herewith a conservative estimate of our financial needs for the ensuing two years. We itemize for the year 1919 and believe a similar amount will be required for 1920:

New Equipment	$200.00
Postage and Stationery	175.00
Supplies, printing, etc.	300.00
Examination paper, etc.	75.00
Extra help	150.00
	900.00
Duplicate items for 1920	900.00
	$18.00.00

We respectfully call attention again to the fact that our valuable records are in grave danger of fire and we strongly urge the construction of a fire proof vault for the preservation of these records.

Respectfully submitted,
P. E. PETERSON,
Registrar.

REPAIRS AND IMPROVEMENTS

To the President of the College:

Sir: I have the honor to report herewith the Department of Repairs and Improvements for the past biennium.

It is my judgment that for the biennium the department of Repairs and Improvements will need not less than $24,000, and that the Janitorial Department will need for supplies and pay rolls not less than $14,000.

SUMMARY

Repairs and Improvements	$24,000.00
Janitorial Department	14,000.00
	$38,000.00

Respectfully submitted,
R. O. LARSEN,
Superintendent of Buildings.

DEPARTMENT OF WATER, HEAT, LIGHT, AND SEWERAGE.

To the President of the College:

Sir: I have the honor to report herewith the Department of Water, Heat, Light and Sewerage:

POWER AND LIGHT

In regard to power and light lines, will state that the lines are much too small for the service required of them. Especially is this true of those leading from the Main Building to the Live Stock Building, Barracks No. 2, Barns, Residences, and Poultry Plant.

I should like to have a new high voltage line, running from present transformer house to a room built in connection with proposed tunnel west of Live Stock Building, thus doing away with all low voltage wire at back of Main Building.

By bringing feed line through basement of Main Building and connecting with tunnel, the salvage on old copper would be quite an item; besides being an improvement to the campus.

If the old lines were down, the cost would be something like $5,000 to make all of these changes. Lamps for two years would cost approximately $1,500. Fuses, tape, knobs, cleats, switches, wire, scokets, rosettes, tools, etc., $250.00.

WATER WORKS

We have had a considerable amount of trouble with the water pressure during the last year. Sometimes not more than ten or fifteen pounds was in the mains; not enough pressure to reach the second floor in any of the buildings. Often, work had to be stopped on third floor of Chemistry Building.

To overcome these conditions, we should have a main pipe laid from the reservoir (some mile and a half) to come down through College grounds from the east.

The cost would be about $12,000. This would insure us a steady pressure at all times of about fifty pounds. The maintenance, such as new taps, valves, pipe, packing, tools, taxes, etc., would amount to approximately $2,500.00.

SEWERAGE

For cleaning sewer mains, etc. One Wrigley Patent Auger, $75.00.

Replacing of broken toilets in lavatories, urinals, sinks, slop bowls; with pipe fittings and labor, approximately, $500.00.

STEAM HEAT

It is very hard to estimate the needs of steam heat for the next biennium because of the unknown condition of new buildings after the contractors are through with them. We have the Live Stock Building, Barracks No. 1, and No. 2. These buildings, with a rough estimate of eight to ten thousand square feet of radiation in each building, would require three more boilers the size of the ones we already have. Then we need the Boiler House furnished with additional coal bins to take care of 300 tons of coal, with rooms on the northwest corner according to former plans. This cost alone would be about $20,000. We should also have about 1,000 feet of tunnel constructed to connect each of the new buildings, which would cost about $9,000.00. This tunnel would contain steam, water, sewer and electric lines, so that in case of breaks or stoppage, it could be repaired without digging up the campus.

Maintenance for next two years:

Coal	$22,000.00
Firing tools, oil, waste	200.00
Extra on Stokers	500.00
Radiators, valves, pipe fittings, etc.	500.00
Packing	200.00
	$25,400.00

It has been requested by Professor Ray B. West and Mr. Newey that rooms known as Carriage Shop and Foundry be fitted with steam heat and be connected with main steam plant.

This, with some other changes desired, would cost about $1,000.00.

Respectfully submitted,
CHARLES BATT,
Superintendent of Water, Heat,
Sewerage and Lighting Plant.

DEPARTMENT OF GROUNDS AND GREENHOUSES

To the President of the College:

Sir: I have the honor to report herewith the Department of Grounds and Greenhouses for the past biennium.

Improvements of various kinds have been made on the campus, such as new lawns, cement walks, tennis courts, and cement steps—the steps on the steep grade leading from the Smart Gymnasium towards the street car line. These steps, as well as part of the cement walks, were made by the detachment of soldiers in training at this institution during the past summer. A considerable number of trees and flowering shrubs of different kinds have been planted on various parts of the College campus.

Arrangements have been made whereby there is close coöperation between my work and the Department of Horticulture by the consolidation of the Department of Grounds and Greenhouses with the Department of Horticulture. By this plan, I will hereafter be brought into closer contact with the collegiate phases of Horticulture and will be called upon to assist in the instructional work of that Department.

The Department of Horticulture will also be able to utilize the resources of the campus and greenhouses more than was possible under the previous plan. It is hoped that such an arrangement will prove of considerable benefit to the Institution.

Respectfully submitted,

EMIL HANSEN,

Superintendent of Grounds and Greenhouses,
and Assistant in Horticulture.

Biennial Financial Report of The Secretary

For Nineteen Months ending June 30, 1918.

Honorable President and Board of Trustees, Utah Agricultural College:

Ladies and Gentlemen: The following report is for the period from December 1, 1916, to June 30, 1918. It is made to cover this period so as to cover our regular biennial period for which both Government and State Appropriations are made. I believe it will be found to be of a great deal more value in every way as it will now show the financial condition of the College at the end of a regular period when appropriations end and when our books are closed.

It is made up of the following items:

I. A report of the Receipts and Expenditures of all Regular Funds as follows:
  A. The College Proper.
  B. The Cedar City Branch.
  C. The Extension Division.
    a. The Farmers' Institute Fund.
    b. The Farm and Home Demonstration Fund.
    c. The Smith-Lever Fund.
  D. The Experiment Station.
    a. The Hatch Fund.
    b. The Adams Fund.
    c. The State Appropriation.
    d. The Miscellaneous Fund (Sales, etc.)
II. A report of the College Incidental Fund.
III. A report of the Receipts and Disbursements of the Student Body Organization.
IV. A Summary of the Inventory of all College Property.
V. A report of the Fire Insurance Carried.

I. RECEIPTS AND EXPENDITURES

A. THE COLLEGE

Receipts:

Cash on hand Nov. 30, 1916		$ 1,383.78
Balance on hand No. 30, 1916 (U. S. Gov. Morrill & Nelson Funds)		23,738,22
From U. S. Government (Morrill & Nelson Fund)		50,000.00
From State (General Maintenance—Mill Tax)		187,570.00
From State (Interest on Land Grant Fund)		26,068.80
From State for New Sewerage System Improvements		178.62
From State for Extension of Heating Plant		600.00
From State for New Granary		255.29
From State for Water Connection at Barns		438.40
From State for New Animal Husbandry Building		55,000.00
From State for Remodeling Dairy Barn		3,000.00
From State for New Pasture		2,964.03
Fees from Students (Entrance and Laboratory)		13,042.30
Sale of Products, etc.		15,767.96
Graduation Fees		615.00
Cafeteria (Reimbursement for Improvements paid for by College)		2,519.27
Gymnasium Fees Turned in		824.83
Refund Insurance Premium		65.60
Summer School Student Life Advertising		43.50
Practice House Rent, etc.		50.35
Miscellaneous		73.18
State Power Plant Appropriation		22,534.07
Add Overdraft our Books		57,194.67
*Overdraft on Treasurer	$58,847.19	
Less Cash on Hand	1,652.52	
(Including Revolving Fund)	$1,000.00	
Add Overdraft Power Plant (Due from State)		1,282.22
Total		$465,210.09

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*The above overdraft on Treasurer is made up as follows:

Due from State on Deficites allowed by State Board for Completion of New Dairy and Live Stock Building	$ 27,325.99
Restoring Roof Mechanic Arts Building (Blown off by wind)	1,060.39

Due from U. S. Government on Soldier Training Contract	14,902.68
Regular Overdraft	13,905.61
Total as shown above	$ 57,194.67

This overdraft was caused by War time conditions because the prices of hay, grain, chemicals, laboratory supplies and almost everything the Institution had to purchase more than doubled in price between the time the College Budget was prepared and the time the purchases were made. The smallness of the overdraft is very remarkable considering the circumstances and it should be entirely taken care of during the succeeding year provided all the money which was intended by the last Legislature becomes available.

Expenditures:

Overdraft on Treasurer Nov. 30, 1916 (State Maintenance Fund)			48,962.37
Overdraft on Treasurer Nov. 30, 1916 (State Power Plant Fund)			3,606.75
General Maintenance			276,548.36
Salaries		$179,688.46	
From Government Fund	$ 73,738.22		
From State Fund	105,950.24		
Labor (Payrolls)		19,971.01	
Supplies		29,128.84	
Fuel		14,937.12	
Insurance		1,325.34	
Light and Power		793.49	
Telephone and Telegraph		1,288.87	
Postage and Stationery		2,476.36	
Printing and Advertising		8,907.97	
Repairs (Plant and Equipment)		4,404.15	
Traveling Expenses		5,225.58	
Water Tax		1,288.00	
Fairs and Exhibits		781.31	
Interest on Overdraft at Bank		656.41	
Unclassified Expense		5,675.45	
General Equipment			18,680.76
Furniture		3,671.14	
Machinery and Implements		8,381.91	
Scientific Apparatus		1,599.98	
Books, Maps, etc.		3,081.68	

Live Stock	713.61	
Unclassified	1,232.44	
Building—Repairs and Improvements		6,767.67
Main Building	1,461.24	
Residences	961.37	
Campus and Green House	755.39	
Shops and Barns	1,810.10	
Light, Heat and Power, Water Works and Sewer	41.25	
Woman's Building	313.55	
Gymnasium	571.18	
Chemistry Building	220.06	
Unclassified	633.53	
State Power Plant		20,209.54
New Pasture		2,986,87
Extension Heating Plant		599.28
New Roof Mechanic Arts Building		1,060.39
Water Connection at Barn		438.40
New Animal Husbandry Building		81,743.68
New Granary		255.29
Remodeling Dairy Barn		3,000.80
Special Live Stock		349.93
Total		465,210.09

B. THE CEDAR CITY BRANCH

Receipts:

Cash on hand Nov. 30, 1916 (Revolving Fund)		200.00
From State Deficit Allowance		12,938.83
From State—General Maintenance		55,264.00
Mill Tax	45,264.00	
Special Appropriation	10,000.00	
State Appropriation—Furniture and Equipment		14,404,27
State Appropriation—Repair Buildings		5,050.00
State Appropriation—Campus Improvement		1,593.74
State Appropriation—New Buildings		1,638.55
Fees From Students		1,436.95
Sale of Products, etc		1,277.94
Total		93,804.28

Expenditures:

Overdraft on Treasurer Nov. 30, 1916	13,069.73
Salaries	40,623.66
Payrolls	2,764.68
Supplies	3,414.46
Postage and Stationery	323.55
Printing and Advertising	2,021.35
Fuel	1,489.20
Light and Power	498.12
Insurance	187.50
Traveling Expenses	1,234.54
Repairs Plant and Equipment	165.99
Freight and Express	173.55
Equipment	123.33
Library	456.15
Heating Plant	16.61
Campus Improvement	1,651.23
Repair Old Buildings	88.00
New Buildings	1,642.55
Special Furniture and Equipment	14,785.34
Farm	1,720.56
Unclassified	1,720.26
Interest on Overdraft at Bank	175.00
Special Repair Heating Plant	5,168.75
Campus House and Stables	229.20
Balance	60.97
Total	93,804.28

C. THE EXTENSION DIVISION

a. Farmers' Institute Fund

Receipts:

From State Appropriation	20,932.81
Fees from Schools Held	1,744.29
Overdraft on Treasurer	392.73
Total	23,069.83

Expenditures:

Overdraft on Treasurer Nov. 30, 1916	994.59
Salaries and Labor	10,522.62
Traveling Expenses	7,465.10

Printing and Advertising	1,733.57
Supplies	1,592.58
Equipment	538.19
Interest on Overdraft	144.08
Unclassified	79.10
Total	23,069.83

b. Farm and Home Demonstration Fund

Receipts:

State Appropriation	45,000.00
From Iron County	1,000.00
From Weber County	1,600.00
From Millard County	1,300.00
From Utah County	1,850.00
From Sevier County	1,275.00
From Carbon County	1,170.00
From Emery County	480.00
From Beaver County	1,100.00
From Salt Lake County	3,100.00
From San Pete County	500.00
From Morgan County	400.00
From San Juan County	125.00
From Summit County	600.00
From Box Elder County	1,500.00
From Wasatch County	500.00
From Washington County	440.00
From Cache County	1,200.00
From Davis County	415.00
From Piute County	100.00
From Tooele County	350.00
From Wayne County	250.00
From Grand County	62.50
From Juab County	330.00
Miscellaneous (Refunds, etc.)	92.82
Overdraft on Treasurer (Due from Counties)	1,116.68
Total	65,857.00

Expenditures:

Overdraft Nov. 30, 1916	4,345.11
Salaries and Labor	32,680.31
Traveling Expenses	22,443.85

Printing and Advertising	1,485.13
Equipment	542.58
Supplies	731.47
Postage and Stationery	1,118.40
Tools, Implements and Machinery	1,628.09
Furniture and Fixtures	440.43
Contingent Expense	441.63
Total	65,857.00

c. Smith-Lever Fund

Receipts:	
From U. S. Government	23,731.64
Expenditures:	
Overdraft on Treasurer Nov. 30, 1916	5,294.67
Salaries	10,170.14
Labor	345.56
Printing and Stationery	409.81
Postage, Telephone and Telegraph, Freight and Express	394.53
Seeds, Plants and Sundry Supplies	64.58
Library	24.25
Tools, Implements and Machinery	29.25
Furniture and Fixtures	117.25
Traveling Expenses	6,869.60
Contingent Expenses	12.00
Total	23,731.64

SUMMARY OF EXTENSION DIVISION

Receipts:	
Farmers' Institute Fund	22,677.10
Farm and Home Demonstration Fund	64,740.32
Smith-Lever Fund	23,731.64
Overdraft (as shown above)	1,509.41
Total	112,658.47
Expenditures:	
Farmers' Institute Fund	23,069.83
Farm and Home Demonstration Fund	65,857.00
Smith-Lever Fund	23,731.64
Total	112,658.47

D. EXPERIMENT STATION

a. Hatch Fund

Receipts:	
From U. S. Government Appropriation	22,500.00
Balance with Treasurer Nov. 30, 1916	842.64
Total	23,342.64
Expenditures:	
Salaries	11,600.60
Labor	2,520.95
Publications	346.58
Postage and Stationery	848.26
Freight and Express	2.93
Heat, Light and Water	263.31
Chemical Supplies	318.09
Seeds, Plants, and Sundry Supplies	604.28
Fertilizers	111.75
Feeding Stuffs	2,920.52
Library	478.10
Tools	566.78
Furniture and Fixtures	548.87
Scientific Apparatus	99.72
Live Stock	6.09
Traveling Expense	1,298.55
Buildings and Land	27.50
Contingent Expenses	779.76
Total	23,342.64

b. Adams Fund

Receipts:	
From U. . Government Appropriataion	22,500.00
Expenditures:	
Overdraft on Treasurer Nov. 30, 1916	319.68
Salaries	14,086.66
Labor	5,003.93
Postage	37.00
Freight and Express	8.43
Heat, Light and Power	380.99
Chemical Supplies	865.16
Seeds, Plants and Sundry Supplies	300.53
Feeding Stuffs	428.87

Library	4.00
Tools, Implements, Machinery	153.35
Furniture and Fixtures	25.22
Scientific Apparatus	424.92
Live Stock	122.39
Traveling Expenses	258.05
Building and Land	80.82
Total	22,500.00

c. State Appropriation

Receipts:

State Appropriation	36,732.89
Southern Farm Sales	370.00
Panguitch Farm Sales	5,199.73
Arid Farm Sales	2,785.29
Irrigation and Drainage Farm Sales	713.99
Miscellaneous Sales	196.38
Total	45,998.28

Expenditures:

Overdraft Nov. 30, 1916	366.77
Salaries	11,123.36
Labor	9,967.19
Publications	6,795.46
Postage and Stationery	1,041.78
Freight and Express	63.07
Heat, Light and Water	4.90
Chemistry Supplies	350.60
Seeds, Plants and Sundry Supplies	1,158.24
Fertilizers	116.00
Feeding Stuffs	174.75
Tools, Implements and Machinery	663.80
Furniture and Fixtures	361.70
Scientific Apparatus	699.42
Live Stock	666.91
Traveling Expenses	1,164.11
Building and Land	679.51
Contingent Expenses	704.54
Library	445.98

Balance (for Remainder of Calendar Year)	9,450.19
Total	45,998.28

d. Miscellaneous

Receipts:

Balance with Treasurer Nov. 30, 1916	312.33
From Sale of Products, etc.	4,691.63
Total	5,003.96

Expenditures:

Publications	5.75
Postage and Stationery	284.38
Heat, Light and Water	27.37
Chemical Supplies	183.18
Seeds, Plants and Sundry Supplies	189.39
Fertilizers	156.50
Feeding Stuffs	1,089|55
Library	104.55
Tools, Implements and Machinery	434.04
Furniture and Fixtures	44.31
Scientific Apparatus	94.90
Traveling Expenses	237.52
Building and Land	155.46
Contingent Expenses	1,397.40
Balance with Treasurer	599.66
Total	5,003.96

SUMMARY OF EXPERIMENT STATION

Receipts:

Hatch Fund	23,342.64
Adams Fund	22,500.00
State Station Fund	45,998.28
Miscellaneous Fund	5,003.96
Total	96,844.88

Expenditures:

Hatch Fund	23,342.64
Adams Fund	22,500.00
State Station Fund	36,548.09

Miscellaneous Fund	4,404.30
Balance (as shown above)	10,049.85
Total	96,844.88

RECAPITULATION—RECEIPTS AND EXPENDITURES

Summary of Receipts

A. The College Proper	406,733.20
B. The Cedar City Branch	93,804.28
C. The Extension Division	111,149.06
D. The Experiment Station	96,844.88
Total Receipts	708,531.42
Overdraft on Treasurer (as shown by above Reports)	49,875.48
Total	758,406.90

Summary of Expenditures

A. The College Proper	465,210.09
B. The Cedar City Branch	93,743.31
C. The Extension Division	112,658.47
D. The Experiment Station	86,795.03
Total	758,406.90

II. COLLEGE INCIDENTAL FUND

The following is a report of the Receipts and Expenditures of the College Incidental Fund for the two years ending June 30, 1916. In this Fund we handle all merchandising and Trust accounts. The accounts are either carried perpetually in this Fund or the profits are turned in to the General Fund at the end of each year.

Receipts:

1911 Class Loan Fund Receipts during two years	1,827.18
Balance 1912 Class Locker Fund from June 30, 1916	91.93
1912 Class Locker Fund Receipts during two years	298.00
Balance State Board Horse Commissioners June 30, 1916	2,036.18
State Board Horse Commissioners	2,766.54
Balance Military Suits Fund, June 30, 1916	9.86
Bookstore Sales two years	17,171.59

Creamery Sales	85,507.85
Cafeteria Sales two years	16,503.69
Military Suits sold to students	10,403.39
Gymnasium Fees, two years	2,736.60
Printing Department Sales	1,122.45
Students Deposits (Laboratory)	4,072.45
Military Ball Receipts	439.95
Total Receipts	144,987.66
Overdraft Bookstore carried forward	1,042.42
Overdraft Creamery carried forward	3,892.70
Overdraft on Adams Field carried forward	465.98
Overdraft on Printing Department carried forward	620.85
Total	151.009.61
Expenditures:	
Overdraft 1911 Class Loan Fund, June 30, 1916	36,38
Overdraft Printing Department, June 30, 1916	302.10
Overdraft Bookstore, June 30, 1916	697.57
Overdraft Adams Field Fund, June 30, 1916	56.67
Overdraft Military Ball Fund	35.78
Adams Field Fund	409.31
Military Suits for Students Cost	10,393.02
1911 Class Loan Fund Loans	1,570.00
1912 Class Locker Fund—Rentals	368.23
State Board Horse Commissioners	3,973.68
Bookstore, Books and Merchandise	17,516.44
Creamery, Milk, Labor and Supplies	89,400.55
Cafeteria, Labor and Supplies	13,984.42
Gain on Cafeteria paid to College Fund	2,519.27
Gymnasium Expenses, Laundry Work, Towels, etc.	1,911.77
Gymnasium Fund Balance paid to College Fund	824.83
Students Deposits Refunded	3,376.90
Students Deposits Forfeited, paid to College	695.55
Military Ball Cost	397.70
Printing Department Expenses	1,441.20
Total Disbursements	149,911.37
Balance Military Ball Fund carried forward	6.47
Balance 1912 Class Locker Fund carried forward	21.70

Balance State Board Horse Commissioners carried forward	829.04
Balance Class Loan Fund (1911) carried forward	220.80
Balance Military Suit Fund carried forward	20.23
Total	151,009.61

III. STUDENT BODY ORGANIZATION

The following is a report of the Receipts and Expenditures of the U. A. C. Student Body Organization for the Two Years ending June 30, 1916.

		Net Receipts	Net Cost
Balance on Hand July 1, 1916		119.38	
Fees		6,450.75	
Receipts	6,490.50		
Refunded	39.75		
Faculty Tickets sold		320.00	
Foot Ball			1,557.92
Receipts	5,937.36		
Paid Out	7,513.28		
Basket Ball			582.80
Receipts	3,157.60		
Paid Out	3,740.40		
Base Ball			159.90
Receipts			
Paid Out	159.90		
Track Team			29.10
Receipts			
Paid Out	29.10		
Student Body Dances			229.85
Receipts	172.40		
Paid Out	402.25		
Lyceum Course			778.26

Receipts	3,339.69		
Paid Out	4,117,95		
Dramatics		49.18	
Receipts	492.30		
Paid Out	443.12		
Musicals			140.86
Receipts	925.75		
Paid Out	1,066.61		
Student Life			1,048.75
Receipts	875.66		
Paid Out	1,924.41		
Debating			379.24
Receipts	50.00		
Paid Out	429.24		
Swimming			29.37
Receipts			
Paid Out	29.37		
M. S. Eccles—Blankets for Football Team		170.50	
Liberty Bonds			250.00
Knight Woolen Mills—Blankets, etc.			314.00
Paid for Sweaters			124.00
Paid for Medals			114.00
Paid to College for help			120.00
Paid to 1918 Buzzer			40.00
Miscellaneous Expenses			1,038.96
Balance on Hand			154.80
Totals		7,109.81	7,109.81

IV. INVENTORIES

(Not Including Supplies and Land Grant)

June 30, 1918

1. The College

Land and Water Rights 147½ acres at $200.00 per acre	$ 29,500.00

Buildings and Fixed Equipment			608,900.00
Main Building		200,000.00	
Boiler House and Heating Plant		30,000.00	
Gymnasium		65,000.00	
Chemistry Building		60,000.00	
Experiment Station		4,000.00	
Mechanic Arts Building		40,000.00	
Women's Building		40,000.00	
State Power Plant		80,000.00	
Transformer House and Substation		5,800.00	
Residences		12,500.00	
President's	4,500.00		
Director's	3,000.00		
Agronomist's	2,000.00		
Three Workmen's Cottages	3,000.00		
Farm Buildings		37,700.00	
Horse Barn	4,000.00		
Cattle Barn	10,000.00		
Sheep Barn	6,000.00		
Piggery Barn	1,700.00		
Poultry House	4,700.00		
Stock Judging Pavilion	5,300.00		
Tie Sheds and Fencing	3,000.00		
Granary	3,000.000		
Veterinary Hospital		15,000.00	
Conservatory		6,00.00	
Fixed Equipment		12,900.00	
Sewer System	6,000.00		
Water Works	6,000.00		
Commercial Department Office Equipment	900.00		
General Equipment			**170,832.54**
Offices		5,083.65	
President's Office	3,305.50		
Secretary's Office	1,399.65		
Registrar's Office	378.50		
Departments of Instruction		126,427.52	
Agronomy	2,263.50		
Animal Husbandry	20,800.55		
Art	1,015.16		
Bacteriology	2,466.80		

Botany	4,500.00	(Estimated)	
Correspondence	263.70		
Chemistry	7,358.16		
Commerce	5,600.15		
Dairying	2,851.75		
Home Economics Dept.	10,111.14		
Mechanic Arts	25,437.97		
Engineering	5,095.78		
English	420.25		
Farm Machinery	916.83		
Horticulture	11,939.27		
History	404.00		
Irrigation	542.80		
Mathematics	531.50		
Military	236.45		
Modern Languages	28.50		
Music	3,681.75		
Photography	189.35		
Geology and Mineralogy	1,868.60		
Physics	7,590.55		
Physical Education	1,401.00		
Veterinary Science	702.30		
Zoology and Entomology	7,880.04		
Poultry Laboratory	329.67		
Miscellaneous Equipment		39,321.37	
Library	23,523.56		
Bookstore	483.00		
Janitorial	6,312.27		
Construction, Repairs and Plumbing	2,070.60		
State Board of Horse Com's.	469.50		
Cafeteria	1,608.34		
Bookstore Mdse.	4,273.50		
Exhibits	580.60		
Total			809,232.54

11. Branch Agricultural College, Cedar City.

Land Campus (27 acres)	5,200.00
Arid Farm (80 acres)	2,000.00
Buildings and Field Equipment	134,465.98

Library Building	60,000.00		
Science Building	50,000.00		
Mechanic Arts	10,000.00		
Boiler House (Boilers, Pipe, etc)	8,300.00		
Barn	5,500.00		
Library (Value)	2,450.00		
Furniture	10,000.00		
Apparatus, Tools Machinery	15,135.98		
Improvements on Land	3,000.00		
Live Stock	6,600.00		
Sheds and Yards	1,250.00		
Fences	500.00		
Camp House	730.00		
Campus or Farm (19⅞ acres)			7,950.00
Total B. A. C.			185,615.98
III. Extension Division.			
General Equipment			11,664.32
Offices		4,267.24	
Home Demonstrators (Emergency)		161.12	
Dry Farming Demonstrator (Emergency)		124.57	
Irrigation Department		93.50	
Counties		3,505.04	
Beaver County Agent, Dem. Equipment	337.00		
Box Elder County Agent Dem. Equipment	468.85		
Carbon County Agent Dem. Equipment	527.85		
Millard County Agent Dem. Equipment	365.75		
Rich County Agent Dem. Equipment	38.00		
Salt Lake County Agent Dem. Equipment	279.50		
San Pete County Agent Dem. Equipment	525.00		
Utah County Agent Dem. Equipment	406.35		

Uintah County Agent Dem. Equipment	55.74		
Weber County Agent Dem. Equipment	351.00		
Morgan and Summit Counties Agt. Dem. Equipment	150.00		
County Agents (Emergency)		3,512.85	
Sevier	299.00		
Cache	345.25		
Duschesne	64.40		
Emery	487.50		
Garfield and Piute	436.75		
Juab	10.00		
San Juan	510.75		
Wasatch	357.20		
Washington	57.10		
Wayne	7.00		
Davis	303.90		
Iron	329.00		
Tooele	305.00		
Total Extension			11,664.32
IV. Experiment Station			
General Equipment			25,583.20
Offices		3,988.00	
Director's	1,994.50		
Secretary's	123.75		
Clerk's	242.25		
Library	1,170.00		
Mailing Room	170.00		
Basement	5.00		
Poultry Managers	226.00		
Irrigation	56.50		
Departments		21,595.20	
Agronomy	3,515.00		
Animal Husbandry	701.75		
Bacteriology	1,531.75		
Botany (estimated)	600.00		
Chemistry	7,200.00		
Horticulture	970.95		
Poultry	4,211.70		

Zoology and Entomology	1,569.15	
Photography	112.25	
Soil Survey	422.00	
Irrigation	760.65	
V. Arid Farms, Buildings and Equipment		1,613.25
VI. Panguitch Farm—Equipment		1,880.90
Total Experiment Station		29,077.35
Grand Total		1035,590.19

The State Power Plant is included above, but should probably not be considered as College Property.

The above Inventories for Equipment were hurriedly compiled from the Inventories as handed in by the Departments in the rough. They will be checked, corrected and permanently filed in the Secretary's office.

V. REPORT OF THE FIRE INSURANCE CARRIED BY THE UTAH AGRICULTURAL COLLEGE

Nov. 30, 1918

All of the Insurance carried at the plant at Logan with the exception of the New Buildings during the last few years is covered by a Blanket Policy as follows:

Main Building and Contents	148,000.00
Experiment Station and Contents	7,000.00
Woman's Building and Contents	32,000.00
Mechanic Arts Building and Contents	32,000.00
Transformer House and Contents	1,000.00
Poultry House and Contents	5,000.00
Horse Barn and Contents	6,000.00
Tie Shed and Contents	1,500.00
Cattle Barn and Contents	7,600.00
Sheep Barn and Contents	3,300.00
President's Residence	2,700.00
Director's Residence	2,000.00
Agronomist's Residence	1,600.00
Three Employees' Cottages	1,200.00
Green House and Contents	3,200.00
Piggery	1,000.00
Veterinary Hospital and Contents	900.00

Stock Judging Pavilion	4,000.00
Total	260,000.00

Insurance is carried in addition to the above as follows:

Cedar City Branch Buildings	
Library Building and Contents	22,000.00
Physical Building and Contents	33,000.00
Gymnasium and Mechanic Arts Building	12,000.00
B. A. C. Total	67,000.00
Buildings at St. George	2,100.00
Boilers at B. A. C. and Logan	15,000.00
Elevator at Woman's Building	10,000.00
Gymnasium	20,000.00
New Chemistry Building	30,000.00
New Animal Husbandry Building	40,000.00
Furniture at Practice House	1,000.00
Total Insurance Carried	445,100.00

This is divided among various companies as follows:

Home Fire Insurance Company of Utah	138,100.00
National Union Fire Insurance Company	39;500.00
Home Insurance Company of New York	38,000.00
Milwaukee Mechanic Insurance Company	29,200.00
Northwestern National of Milwaukee	28,500.00
New Jersey Fire Insurance Co.	21,000.00
St. Paul Fire and Marine Insurance Co.	10,000.00
Maryland Casualty Company	10,000.00
American Central Insurance Co.	7,000.00
The Humbolt Fire Insurance Company	2,000.00
The Phoenix Insurance Company	1,500.00
Pittsburg Underwriters Policy	3,000.00
Millers National Insurance Company	18,400.00
American Eagle Fire Insurance Company	12,500.00
The North River Insurance Company	12,500.00
The Continental Insurance Company	10,000.00
The Hartford Fire Insurance Company	8,000.00
The Prussian National Insurance Company	7,000.00
Northwestern Mutual Fire Insurance Company	6,000.00

The Allemannia Fire Insurance Company	6,000.00
The Connecticut Fire Insurance Company	4,000.00
Globe & Rutger's Fire Insurance Company	5,000.00
Niagara Detroit Underwriters	4,000.00
Norwitch Union Fire Insurance Company	2,500.00
National Ben Franklin Fire Insurance Company	2,900.00
The Insurance Company of the State of Pennsylvania	2,000.00
The New Brunswick Insurance Company	2,500.00
Rhode Island Insurance Company	2,000.00
Queen Insurance Company	2,000.00
The Ocean Accident and Guarantee Corporation	10,000.00
Total	445,100.00

I hereby certify that the above is a true and a correct report of the Financial condition of the College, and of the Receipts and Disbursements of same for the Biennium ending June 30, 1918. I further certify that the books have been well kept, that the report agrees with same, and that proper duplicate receipts and vouchers are on hand for all Receipts and Disbursements.

Very respectfully submitted,

JOHN L. COBURN,

Secretary.

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